

COAL AGE

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No Coal Freight Reductions This Year

PRESSURE on the government and on the railroads for lower rates is insistent. One group of shippers after another has urged its need for reductions and some have obtained such reductions. The farmers have been successful in having grain rates lowered, the iron and steel men have put through a reduction in the rates on their products destined for export. Others, such as the oil interests, are now presenting a strong case. The docket of the Interstate Commerce Commission is crowded with petitions of this character. In answer to the cry for lower rates the railroads exhibit the list of what they have conceded.

Rates were increased a year ago last summer, by and with the consent of the whole country, for no purpose other than to give the railroads a livelihood. The government was told that the country needed adequate transportation and the railroads needed money to supply it. No one raised an outcry against giving the roads their just due. That was at a time when business was humming, prices high and labor well paid, though the railroads were in severe straits. It was easy then to say "Raise the rates; we will pay." It was a belated but necessary move to give the roads a share of the national prosperity, denied them through the war save at the expense of the public Treasury.

Horizontal increases in rates were resorted to as expedients—in the light of present knowledge there is no other explanation for this system. The old theory of putting rates at what the traffic would bear was, temporarily at least, discarded. The result of the several horizontal raises in rates beginning in 1918 is that rates on commodities and raw products are sadly out of line with those on manufactured goods. The relations between values and freights established through years of our national life are out of tune. One business after another has been thrown out of joint by this factor. The obvious thing to do is to restore the old balance, which means give commodities a general reduction. And because this is the obvious thing to do we hear many say that it is about to be done. But the obvious is not always the proper course.

Freight rates cannot recede to their pre-war level, at least within our necessarily shortened view of the future. The Interstate Commerce Commission has been charged by Congress with maintaining rates at such figures as will assure the roads a certain specified average net return on their valuation. Just how far can the commission go in reducing rates in view of this mandate in the Transportation Act of 1920? There is a limit beyond which the managers of the railroads dare not go in sacrificing maintenance to the credit of net operating returns. That limit, it is alleged, has been reached on some systems. The promised average return on investment has so far been denied the roads by circumstances unforeseen a year ago. Still the

"sniping" at the roads for reductions of particular rates goes merrily on.

Coal constitutes one-third of the tonnage carried by the railroads and supplies possibly one-quarter of the revenue. Some time ago efforts were made to obtain reductions of the rates on coal to tidewater when destined for export to Europe and South America. The roads are understood to have opposed such a course because it would have opened the way for claims for reductions on all coal to tidewater, and they are unable to forego the revenue a decrease of such limited dimensions would produce. What then would be the position of the carriers at this time on a general coal-rate reduction?

With freight averaging one-half the delivered cost of coal and with the consumer concerned with the price he must pay, it is small wonder that those who sell coal are asking about the prospects for a reduction. The jobbers have filed a formal petition before the Interstate Commerce Commission asking for a general reduction in rates on coal. They argue, "First come, first served," and point to the grain and lumber-rate reductions, and that, though the commission may not order a decrease on coal, it may have to consent to it.

If this is but a gesture it is ill-timed; if it is a serious effort it is ill-advised. There will be no general reductions in coal freight rates until railroad labor is again reduced, and every indication points to next April for that event. A reduction of 10 per cent in coal rates would mean a decrease of from 2 to 2.5 per cent in operating revenue; a reduction of 20 per cent would cut railroad revenue by 5 per cent. We do not understand why anyone who has given serious thought to the subject and who desires to maintain the solvency of the railroads of this country can advocate or urge such action. And if it cannot now be, continued agitation upsets the coal market and does no good. And who will contend that even an immediate reduction would galvanize the trade or move more coal?

Recognizing the Obvious

THERE always is the possibility of overlooking the obvious. The bituminous coal operators of this country have an organization in which without exception the best men in the business have a personal, active interest. Like many other business men's organizations born of war necessity, the National Coal Association has fought its way through the post-war period and is now in the period of deflation. In answer to the questionings of those who shake their heads and express wonder as to whether the association can longer justify an existence its supporters continue their interest and support, and the association continues to meet the expectations of those who lead it and of those who look to it for leadership.

Another organization in which the coal men have a

large interest and to which many belong and of which two are vice-presidents is the American Mining Congress. The Mining Congress, older in years and embracing the whole of the mining industry of the country, has different purposes and ideals than the coal association. There is no question of divided allegiance, no problem of duplication of effort between these two groups. The Mining Congress is fundamentally a Washington contact for the mining industry, but the history of its activities has identified it primarily with the metal-mining industries rather than with coal.

In our zeal for the success of the older organization, however, we must not lose sight of the obvious fact that the younger is by, for and of the coal industry. Operators in twenty-three states, representing an industry that has 27 per cent of the total investment in all mining in the United States, have banded together in common interest. They have a community of interest that is separate and apart from that animating those engaged in other branches of mining. The ties that bind the coal producers together are more real than those holding all those in extractive mineral industry. There are other national organizations in which the coal operators are a part. The United States Chamber of Commerce numbers the National Coal Association in its membership and the National Industrial Conference Board has individual coal operators as members. But none of these takes the place of an association of coal operators and never can.

An example of the way in which the Mining Congress functions with respect to coal, and in conjunction with the National Coal Association, is found in the recent conference of a committee representing coal, metals and oil with the Secretary of Commerce on the subject of exports and the policy of the national government on foreign commerce. This committee was conceived and organized by the Mining Congress but the separate industries were represented by men from the ranks of the more specialized organizations. The president of the National Coal Association and the chairman of the standing committee on foreign trade of that association were in the group that talked with Mr. Hoover. It is natural to suppose that the officers of the Mining Congress recognized the position of the operators' association and did the obvious thing of inviting the coal men to their party through the National Coal Association. It is patent that there cannot be two groups representing the coal operators, each leading. The National Coal Association is amply competent to take care of the interests of its constituents and is fortunate in having the aid and support of the whole mining industry through the Mining Congress. The Mining Congress, on the other hand, has so far wisely recognized the natural leadership of the coal association in matters of coal and in consequence has the support of many of the individuals in the coal industry.

Anthracite and Metal Flow Sheets

AT METAL mines there is much multiplication of equipment. In the Inspiration mill, for instance, have been installed twenty separate sections which contain twenty 600-ton bins, twenty pan conveyors, twenty weightometers, forty Marcy mills, twenty Dorr classifiers, twenty 16-compartment roughing flotation machines, twenty 6-compartment machines for floating the mineral, twenty drag-belt classifiers, forty spigot Deister classifiers, 240 double-deck Deister tables for

use on sand that requires further concentration, etc.

Contrast this with the Marvine preparator described in this issue. There is not a single instance in which as many as twenty similar units are installed. The nearest approaches are in the twelve stove and twelve chestnut jigs. The number of pea, buckwheat and broken jigs is only four apiece. So much for jigs; the number of rolls and shakers is even less. In the Marvine breaker there are only two main rolls—though, by the way, the Inspiration has no more—only two picking tables, two lump shakers, two No. 2 rolls, four shakers for coarser material and the same number for smaller sizes. There are two slush shakers, two slate shakers, one No. 3 roll, a thickener, eight concentrating tables and four Dorr separators. Variety rather than multiplication is the dominant feature of the anthracite preparator.

One reason for the fewness of units in the coal-mining plant is that they do their work more rapidly than similar units in a metal mill. The material is easier to reduce in size and is not intentionally crushed to anything like a coarse powder, as is customary in a metal mill. The coal preparator does not carry the separation of impurities so far and so passes the material along more rapidly. Consequently many units are not needed for the preparation of any one size. But the product is more varied. The mill has but one aim, the anthracite preparator several. It makes broken, egg, stove, chestnut, pea, buckwheat, birds-eye and silt—eight sizes. It must have bins to store each size. Consequently the dimensions and equipment of a big anthracite preparator cannot be much reduced even though a decreased output and reduced duty might be deemed advisable. We soon get down to an aggregation of single units, and beyond that we cannot go. As we approach it efficiency declines, because it is not possible for one man to attend to operations at different levels.

If anthracite could be reduced to one size—say chestnut—and be prepared as chestnut, we could have a one-jig mill with only one railroad pocket, and though the output would be low it would be a remarkably simple and compact little plant. But by reason of the necessity of making and therefore preparing and storing many sizes a breaker must be large whether it produces much or little. If small it would not be as efficient as if large but it would be at least feasible to build it and operate it. But that really is neither profitable nor possible. For this reason most preparators are made large, and at great cost coal is brought to each of them from a distance. Every large breaker has narrow-gage or broad-gage tracks or conveyors bringing coal from distant points, from mines, strip pits or culm piles.

Here then is a natural deduction. If all breakers were to be worked triple shift it would be necessary to bring coal from greater distance to keep the mammoth buildings operating at full capacity or to work them inefficiently, for they could not be greatly reduced in size even where new ones were constructed. One man can take care of several units on the same level and if the numbers of units on one level were reduced the attendance per unit would be increased in costliness and hence it would not pay to reduce the number of any class of units excessively. The attendance costs would mount more quickly than the interest, deterioration and obsolescence charges would decline. Thus the complication of the flow sheets makes triple shifts disadvantageous. It would be good news to the anthracite region were it not so.

Wet Preparation Replaces Dry at Marvine Colliery, The Breaker Being of Fireproof Construction*

After Crushing to Steamboat, Manville Coal Is Dumped Into Railroad Cars and Brought to Conveyor--Marvine Coal Is Crushed at Ground Level, Reducing Height of Structure—No Bucket Elevators Used—Forty-Four Jigs Installed

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IN 1920 construction was started on a 5,000-ton steel breaker at the Marvine colliery of the Hudson Coal Co., in order to concentrate in one breaker preparation of material that was being handled in two old structures where dry methods of preparation were used. Besides, the old Marvine breaker was unable to handle all the tonnage that the mines were able to produce.

The Manville breaker, one of the two eliminated by this concentration, is situated about one mile from the Marvine. The coal is now dumped in this old plant and

*Extract from article entitled "Advances in the Preparation of Anthracite," presented at the September meeting of the American Institute of Mining and Metallurgical Engineers.

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run through a pair of rolls, which crushes it to steam-boat size, then by chutes it is delivered into railroad cars that convey the coal to the new Marvine breaker, where it is dumped into a conveyor line.

The Marvin has two hoisting shafts 2,000 ft. apart, but one of these was used only to hoist the coal from the lower to an intermediate level, where it was sent to the main shaft, up which it was hoisted into the breaker. As the new breaker can handle the output from both shafts, the output is practically doubled.

One interesting feature of this new breaker is that the coal from one of the shafts is carried to the breaker over the main line of the Delaware & Hudson R.R. and

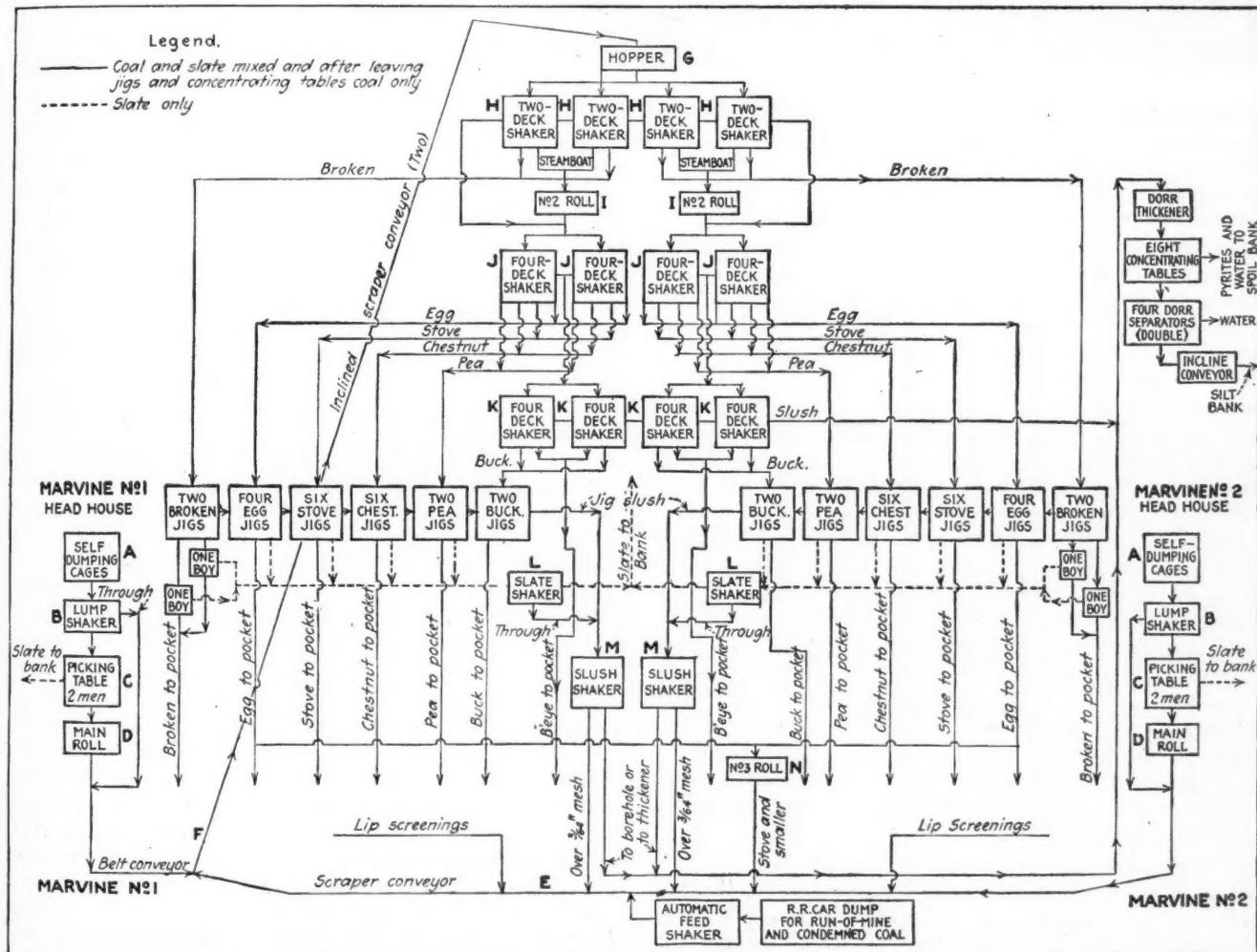


FIG. 1. FLOW SHEET OF MARVINE BREAKER SHOWING, ON EITHER SIDE, WORK DONE IN ROCK, OR HEAD, HOUSES

In this wet preparation plant there are no elevator buckets. The crushing is all done at or near the ground level, and the larger rock is removed before the coal is taken to the breaker. A belt and a scraper conveyor take this coal to the top of the breaker.

where it is not further crushed unless the market for broken coal is unusually low. In the upper corner of the chart may be seen a diagram of the plant that cleans, for steam use, the coal under $\frac{1}{2}$ -in. diameter. In all there are forty-four jigs, eight con-

centrating tables, one thickener, four separators, two main rolls, two rolls to break steamboat and broken and one to break egg to stove and smaller. Note that the slush can be delivered to a borehole for backfilling, if that disposal of it is desired.

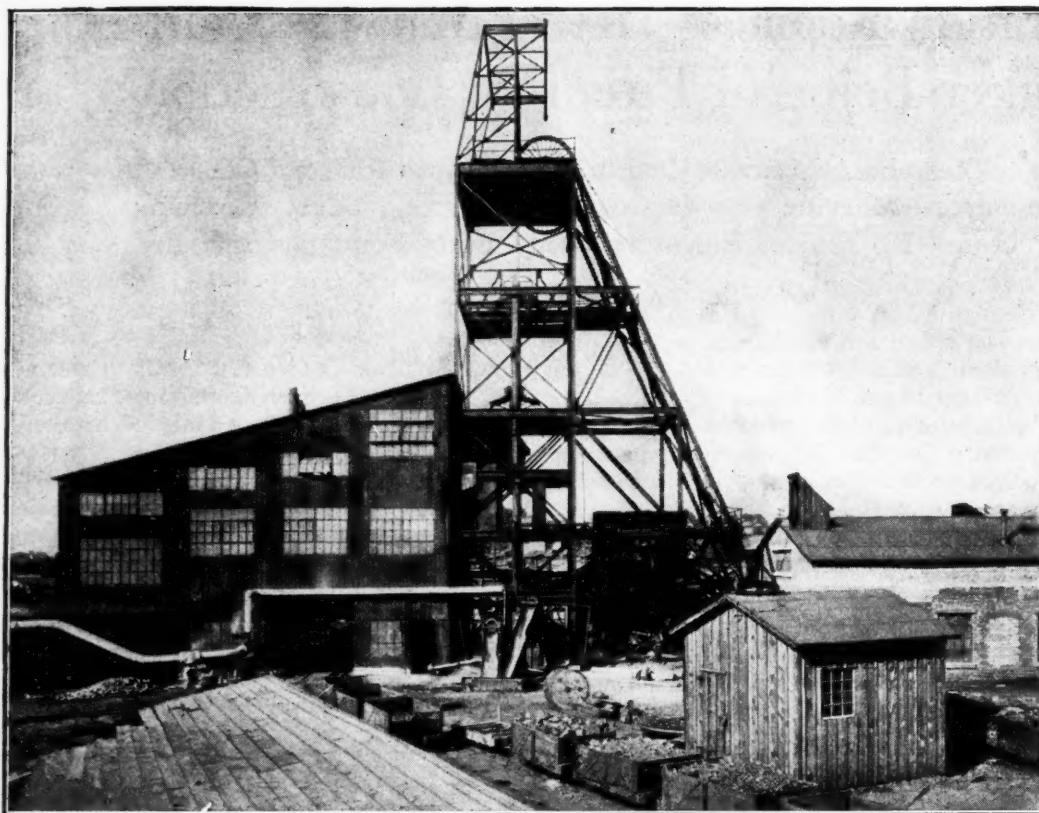


FIG. 2

**A Rock House
at Marvine
Colliery**

In this building the fine material is removed from the coarse in a bull shaker and the lumpy material passes over a picking table, where two men take the rock out. The coal is then crushed in the main roll to steamboat or finer. Then it is rejoined by the material that has passed through the screen. Thus mixed the product is delivered to the belt conveyor. This erection of rock buildings near the ground level saves much top-lofty construction in the breaker proper.

across the Lackawanna River, two belt-conveyor lines, approximately 1,100 ft. in length, transporting it in this latter portion of the journey.

The new Marvine breaker is constructed of steel and prepares the coal by the wet method. The building is as nearly fireproof as it can be made. The only wooden construction is the jigs, the inside lining of the loading pockets, the treads of the stairs, the shaker sides, hangers and arms, the slate-conveyor trough, and the troughs on the three main conveyor lines. The breaker is electrically operated throughout and controlled from a central switchboard. It is equipped with forty-four Delaware, or Tench, piston-type jigs and a complete plant for the treatment of the silt is installed near by. The latter consists of Dorr thickeners and classifiers and Deister-Overstrom concentrating tables.

The coal is crushed on the ground level before it is taken into the breaker, so that the only crushing done is that of the grate, or broken, coal when no market can be found for this size. Crushing the coal on the ground level has the advantage of eliminating the heavy crushers and bull shakers from the top of the building, which cause severe stress on the structure. It permits also a considerable reduction to be made in the height of the building. Another interesting detail is the complete elimination of coal-carrying elevators. Water is supplied to the breaker from the Lackawanna River by electrically-driven pumps.

This breaker is constructed in two distinct units—that is, it is so built that either half of the breaker is a complete operating unit and can be shut down without interference with the running of the coal through the other half.

The following is a description of the flow of coal through the breaker and the method of preparation followed, Fig. 1.

The two headhouses (A) situated at the top of the two hoisting shafts are identical in construction. Coal is

hoisted from each shaft, each of which contains two hoisting compartments in which self-dumping cages operate. The coal is dumped into a chute, which delivers it to the lump shaker (B). The lump-size coal passes from this shaker onto a gravity picking table (C), where two men remove the rock, which is sent to the slate bank. The coal passes through the main rolls (D), which crush it to steamboat size and smaller. The material passing through the lump shaker (B) is conveyed by chutes to a point under the rolls (D), where it mixes with the material from the rolls.

From headhouse No. 1 the coal is transported by means of the two belt-conveyor lines for a distance of approximately 1,100 ft. to the inclined scraper-conveyor lines (F). The coal from headhouse No. 2 is moved by a scraper conveyor (E), which travels directly underneath the center of the breaker. Into this is delivered, as it passes under the building, all material such as products of the rolls breaking egg coal, material from the slate shaker, that from the slush shaker, and from the lip screens. This conveyor also receives the material dumped from railroad cars, either run-of-mine, previously crushed to steamboat size, or condemned coal, both of which are fed to this conveyor by an automatic feed. This conveyor line delivers its material to the inclined scraper conveyors (F), each of which is designed to handle the entire tonnage of this breaker. These conveyors deliver the material to a hopper (G) at the top of the building; thence the material passes to four double-deck shakers (H, Fig. 5). The steamboat material passes from the deck of these shakers into the No. 2 rolls (I), where it is crushed to egg and smaller. The material passing from the second deck of the shakers (H), which is the broken, or grate, size, is sent either to the No. 2 rolls (I), where it is crushed to egg and smaller, or, when a market exists for this size, it goes to two jigs on either side of the breaker from which the coal product, after passing a picker boy,

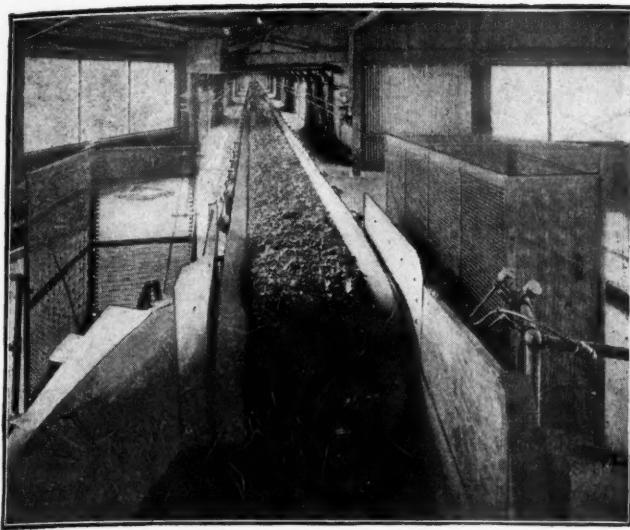


FIG. 3. INTERIOR OF A CONVEYOR HOUSING

This shows one of the long beltways of the Marvine breaker. Note how carefully the gears are guarded and the abundance of light afforded at every point along the travel, even though no picking is done in the conveyor shed.

goes to the loading pocket, and the slate product, after passing a picker boy, goes to the slate bank. Experience has shown that it is necessary to employ one boy on the slate and one on the coal discharged from each of the jigs in order properly to prepare this coal for the market and maintain the slate free from coal.

Material passing through the shakers (*H*), being egg coal and smaller sizes, is mixed by chutes with the product of the No. 2 rolls (*I*). This material then passes on to four sets of four-deck shakers (*J*), which size the coal into egg, stove, nut and pea. The egg coal, which comes from the top deck, goes to four jigs on either side of the breaker. Washed coal from these jigs goes directly to the loading pocket and the slate to the slate bank, both without any hand-picking. In case egg coal is not in demand, this size after leaving the jigs may be passed to the egg-coal rolls (*N*), which break

it down to stove and smaller sizes; the material from these rolls passes into the main intake conveyor underneath the breaker.

Stove coal, coming from the second deck of these shakers, goes to six jigs on either side of the breaker. The washed coal from each jig passes to the loading pocket and the slate to the slate bank, both without picking. Chestnut coal, from the third deck, goes to six jigs on either side of the breaker; as in the case of the other sizes, the washed coal goes to the loading pocket and the slate to the slate bank. Pea coal, from the fourth deck, goes to two jigs on either side of the breaker and, as before, the coal product of these machines goes directly to the loading pocket and the slate is sent to the slate bank.

Material passing through these shakers (*J*), consisting of No. 1 buckwheat and smaller sizes, goes to the 4 four-deck shakers (*K*), which make No. 1, No. 2, No. 3 and No. 4 buckwheat, the last three sizes being mixed and shipped as bird's-eye. No. 1 buckwheat comes from the upper deck and passes to two jigs on either side of the breaker; the washed coal from these machines goes to the loading pocket and the slate to the slate bank. No. 2 buckwheat, from the second deck; No. 3 buckwheat, from the third deck, and No. 4 buckwheat, from the fourth deck, mix at the end of the shakers, and the resulting bird's-eye is conducted by chutes to the loading pocket. The slush, or material which passes through all decks, is conducted to a separate building for further treatment.

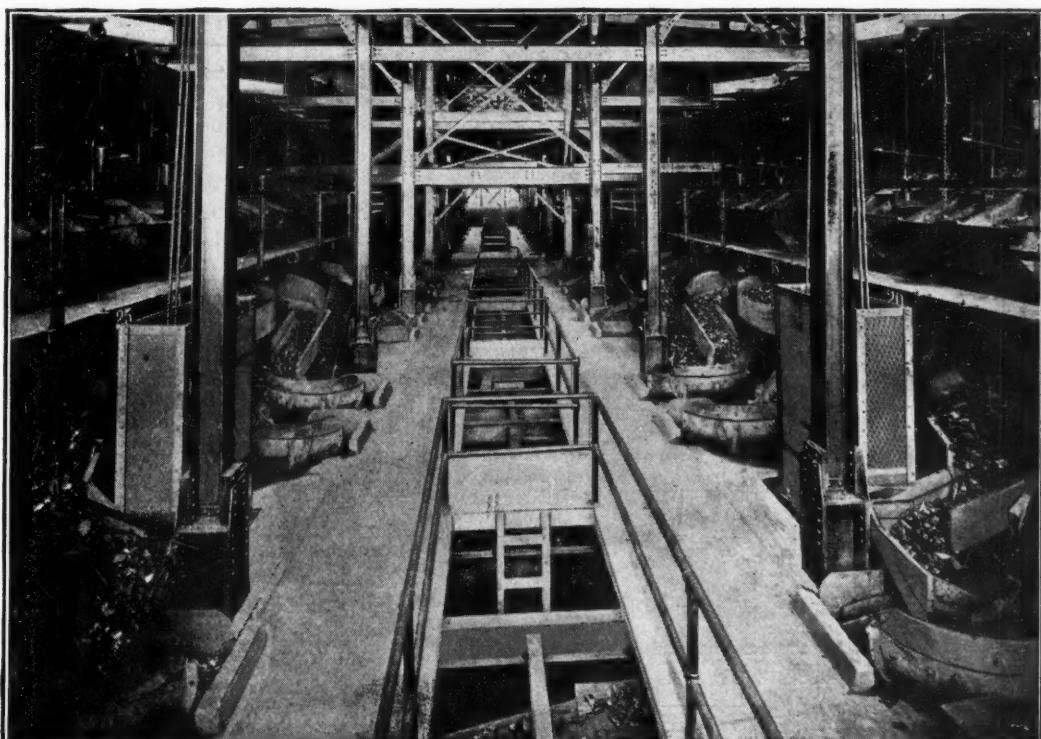
All slate from the jigs passes over slate shakers (*L*) to reclaim the fine breakage. The material going over these shakers passes to the slate bank; that passing through them joins with the slushings from the jigs. This mixture then passes over the slush shakers (*M*). The material passing over a $\frac{1}{4}$ -in. mesh goes into the main conveyor line (*E*) underneath the breaker. The material going through these slush shakers passes to the plant for the treatment of the slush.

Lip screenings from all the loading pockets (Fig. 6)

FIG. 4

Jig Floor Marvine Breaker

This shows the long line of jigs that wash broken, egg, stove, chestnut, pea and buckwheat coals free of their impurities. This floor gives evidence on its face of systematic layout, making it easy for employees to move from jig to jig, and of being light enough to make their inspection effective. Perhaps it is permissible again to call attention to the adequacy with which every place of danger is guarded.



go to the main conveyor line under the breaker. The slush-treatment plant, which receives all the slush from the breaker, consists of a Dorr thickener, in which the slush is settled out of the water; that which overflows contains only the smallest particles of the suspended solids. The thickened material from these machines is fed to eight concentrating tables and the coal from these passes to four Dorr separators, where a large percentage of the water is removed. The coal is then conveyed to a stock pile or a loading pocket for shipment. Pyrite from the concentrating tables may be recovered or discarded as desired. The water from the Dorr thickener and separator passes out of the plant.

The Hudson Coal Co. has given the following details of its fireproofing practice at the Marvine breaker. In building new breakers and adjacent structures for the past several years this company has taken steps to render such buildings fireproof. The precautions taken to this end may be summarized briefly as follows:

In new breaker structures the framework has been built entirely of steel. As far as possible, the design has provided for complete accessibility to all main members for the purpose of frequent inspections and painting. For protection of the steel against corrosion by acid water, deterioration from rust and the like, adequate painting with a suitable vehicle (asphalt and carbon chiefly) is relied upon exclusively.

The roofs and side walls, or sheathing, of these buildings have been made of asbestos-protected metal, attached to steel girts and purlins by means of the usual straps and clips. All window openings have been provided with steel sash, glazed with factory-ribbed wire glass, and fitted with top hinged or pivoted ventilator sections. Practically all door openings have been provided with steel door frames and doors made up of a structural steel framework covered with asbestos-protected metal.

All floors have been constructed of reinforced-concrete slabs, practically continuous over the entire floor area; these vary in thickness from 4 to 6 in., in accordance with expected loads and character of service. In building these floors a self-furring lath, such as Hy-Rib or self-centering, has been laid directly on the floor beams

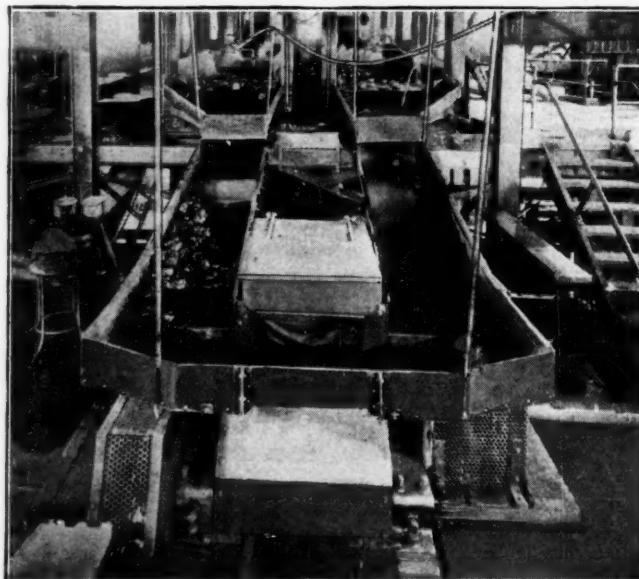


FIG. 5. GRATE AND EGG SHAKERS

This illustration was made from a photograph taken when construction work was being done, as will be noted by the forge on the left and two pails hanging from their bails. The gears, as ever, are well housed.

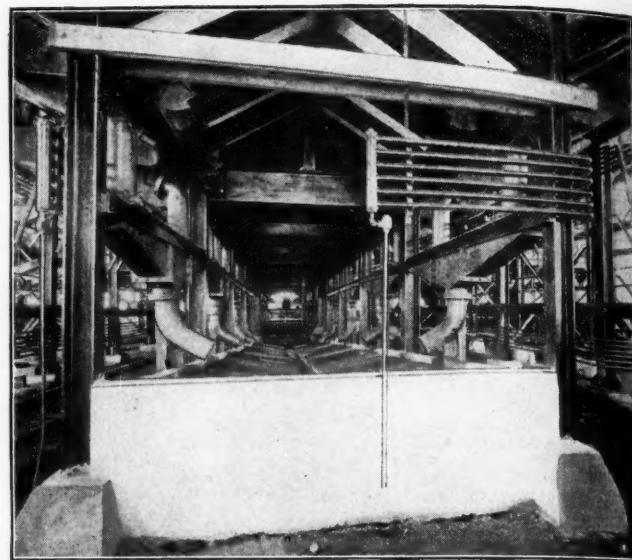


FIG. 6. UNDER THE LOADING POCKETS
The lip screenings at the pockets are spouted onto a conveyor. A scraper conveyor takes this coal, the condemned coal, the steam-boat-and-under from the railroad cars and the material from the rock houses to the hopper at the top of the breaker.

and fastened in place with suitable clips. The concrete has then been poured on top of this lath, without the use of wooden forms. The under side of the floor is back-plastered with a cement gun and hand-floated to a suitable finish. In addition to the metal lath, small-diameter bars provide further reinforcement, so that the possible, although unexpected, deterioration of the lath will not necessarily impair the structural strength of the completed floor.

All stairs have been built of structural-steel stringers without risers, and with 2-in. plank treads. The use of wooden stair treads is not thought to add any serious fire risk, and except several special and expensive forms of treads it is considered the safest and most satisfactory construction. Pipe hand railing has been used on stairs and throughout the entire structure, except where angle-iron handrails and supports have been thought more suitable.

All loading pockets in the breaker have been built on steel stringers, framing into the steelwork of the breaker. The pocket floor, side walls and partitions have been constructed of reinforced concrete in practically the same manner as that followed in the erection of the floors, except that hollow tile has been used to some extent for partitions between pockets. This construction is illustrated in Fig. 7. These pockets have been waterproofed by liberally coating the inside surface with an asphalt mastic, and laying in it the wood lining necessary to protect the pocket floors and side walls from abrasion by the coal and the effects of acid water. The lip screens, chutes, hoppers and troughs have been built entirely of cast iron and steel, the only wood entering into their construction being the gate levers.

Pockets under shaking screens, in the rear of jigs, and the slush troughs under jigs have been built of almost identically the same construction as the loading pockets of the breaker except that it has not been necessary to build them of equal strength. By the use of concrete floors, pockets and slush troughs a continuous monolithic covering is provided over the entire breaker area, level with the tops of the pockets, the only openings being those provided for access by stairs and elevators. This in itself affords obvious advantages from the

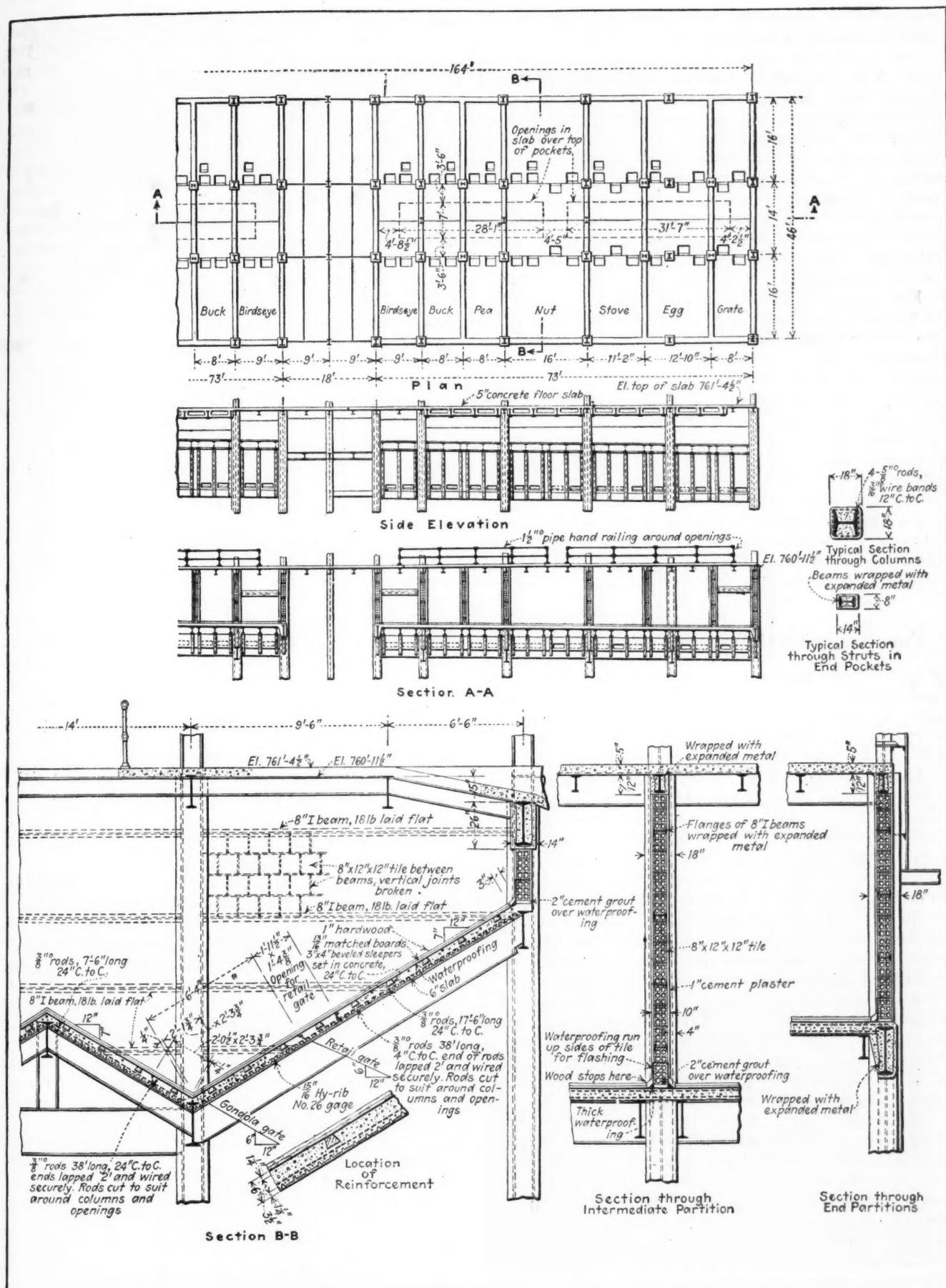


FIG. 7. SECTION THROUGH POCKETS OF MARVINE BREAKER SHOWING FIREPROOFING METHODS
All the loading pockets are built on steel stringers framed into the steelwork of the breaker. Their floors, side walls and partitions are of reinforced concrete, but hollow tile has been used between the pockets, which are waterproofed by a thick coating of asphalt mastic on the inner side. The wood lining which is necessary to protect the pocket floors and side walls from abrasion by the coal and the effects of acid water is set in the mastic.

standpoint of fire-protection as well as from that of adequately heating the structure.

The use of wood in the newer structures has been confined to the jig tanks, pocket linings and other points already noted. Heavy planking for the bottom and sides of flight conveyors has not been entirely eliminated, because of the impracticability of fastening the conveyor trough and side plates to any other structural material. In some instances heavy plank flooring is still used, as it has great strength in proportion to its weight and affords a better footing. Furthermore, it will withstand vibration and flexure without impairment. It is intended, however, to eliminate entirely the use of wood in this connection.

Fireproofing in connection with electric-motor drives in breakers need cover only the control equipment and the wiring to the motor, the motor proper needing no fireproofed inclosure. The policy followed has been to inclose each oil circuit breaker in a fireproof cell with all such breakers and control equipment concentrated in one room, which is made entirely fireproof. The wiring to the motors is incased in a steel conduit for protection against abrasion, and to eliminate the possibility of short-circuits between conductors.

The most pronounced step in the direction of obtaining a fireproof breaker structure is the elimination of all boards and light woodwork, it being a well-recognized fact that heavy timber and planking is ignited with extreme difficulty, whereas boards and wood of

light weight or small cross-section catch fire with ease.

While discussing fireproofing it may be added that the older structures have been renovated with the idea of eliminating the greater and more obvious risks. The motors, together with their control apparatus, have been housed in small fireproof compartments that provide ample space for the attendant to work in and for ventilation of the equipment, but preclude the possibility of the spread of any fire that might possibly originate in the controlling apparatus, particularly the oil switches. Roofs of breaker buildings, particularly those exposed to sparks and embers from passing locomotives, have been re-covered with asbestos shingles or sheet-asbestos roofing. Practically all permanent additions and repairs to the adjacent structures have been roofed with asbestos material.

Chutes, hoppers and other exposed woodwork have been fireproofed by applying metal lath, or in some cases chicken wire, and covering this with cement plaster applied either with the cement gun or by hand. Metal lath and gunite are to be preferred to chicken wire and hand plastering. In other instances similar woodwork has been protected by sheets of light-gage steel (No. 24 or 26); this method yields effective and durable results.

Small frame buildings or portions of buildings housing important machinery have been effectively fireproofed by the application of metal lath and cement plaster inside and out, together with the use of asbestos shingles for roofing.

Powdering Coal Without First Drying It

ONE of the costs of the pulverization of coal has been the drying of the fuel—and one of the dangers also. In this process it may be heated too much and so catch fire. Recently some concerns have been pulverizing the coal without preliminary drying.

There are some large advantages in using coal in powdered form, among them flexibility and easy control of the fire. In this the fuel strongly resembles gas. It is a smokeless and, if properly conducted, a complete combustion that this fuel affords. The use of this product is well beyond the experimental stage and the opportunity to sell it is large, it being used already in the heating of houses, apartments, business and public buildings, for generation of power and steam at central stations and industrial plants, for open-hearth metallurgy and for the manufacture of cement.

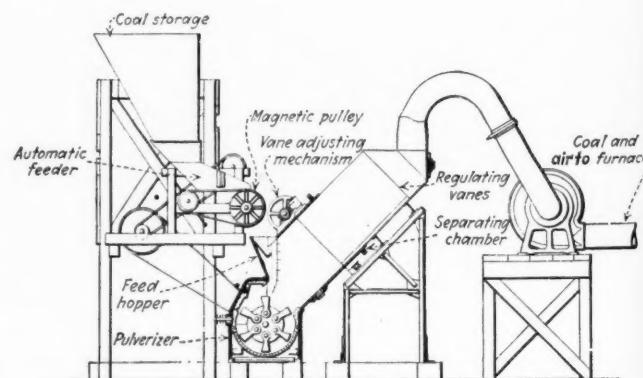
In order to obviate drying difficulties the apparatus shown in the accompanying illustration has been devised and placed on the market. This is known as the Pulver-burner and is intended to pulverize the fuel and feed it direct to the burner of the furnace regardless of the purpose to which the heat is applied.

The apparatus as shown consists of a feeder, an impact pulverizer and an air separator feeding the pulverized product to the burner nozzle. No drying of the coal either before or after pulverization is necessary. Air drawn through the pulverizing chamber at low velocity by means of the fan carries away the fine coal but allows the larger pieces to remain for further reduction in size. The velocity of the air determines the size of particle that it will carry. The fineness of coal fed to the burner may thus be easily regulated.

It is asserted by the manufacturer that because of its simplicity and compactness this machine represents a much smaller investment than that required for the type

of equipment heretofore available. Its small size permits its installation within, say, the boiler room without requiring the construction of a separate building. It will handle any one of a wide variety of fuels and renders those of low grade available for efficient consumption. It affords positive regulation of the rate of feed, the fineness of pulverization as well as of the volume, velocity and pressure of the air at the nozzle. Its simplicity affords strength while the design is such as to render all parts readily accessible for inspection and repair. The pulverization elements can be easily adjusted to compensate for wear.

No accumulation of powdered coal occurs where this machine is employed, obviating the fire hazard usually present. If desired, however, the pulverized material may be separated from the fan discharge by means of a suitable dust collector and stored for transshipment or for future use at the plant. This machine is made by the K-B Pulverizer Co., Inc., of 92 Lafayette St., New York, N. Y.



EQUIPMENT FOR PULVERIZING COAL WITHOUT DRYING

The small size of the apparatus makes it possible to place it in an existing building, thus saving the expense involved in the construction of a separate pulverizer house.

Systematic Methods and Daily Accounting Keep Down Cost of Producing Coal at Indianola Mines

Standards of Mining Exist at Every Mine—Should Be Those Established by Management—Four Section Foremen at Mine—Each Makes Daily Report of Labor and Material Cost—Car Record Kept

BY ALPHONSE F. BROSKY*
Pittsburgh, Pa.

IN ORDER to obtain efficiency and thus reduce cost per ton in coal-mine operation one must not only know what system means but must have both a knowledge of the methods by which system may be attained and the ability to achieve it. Knowing how a thing should be done does not guarantee an individual's being able to do it. Other factors besides possession of the necessary working knowledge are vital to the fulfillment of such a task. For instance, the prospective operator must possess the ability to handle men.

Results may be achieved both by those who are stern and those who are lenient. Others may possibly reach the same ultimate goal by systematization. Without it something is too often lacking and the work does not progress with the same smoothness as is obtained with a properly guided organization. In manufacturing fields the intrinsic value of proper organization was realized long ago. Most large manufacturing concerns have spent much energy and money in installing, or attempting to install, a system. Many such firms have engaged efficiency engineers whose business it is to search out the rough spots in the working of their industrial plants. Unfortunately, the managements of a large majority of the coal companies have not even approximated a system.

DIFFICULTIES IN ORGANIZING UNDERGROUND

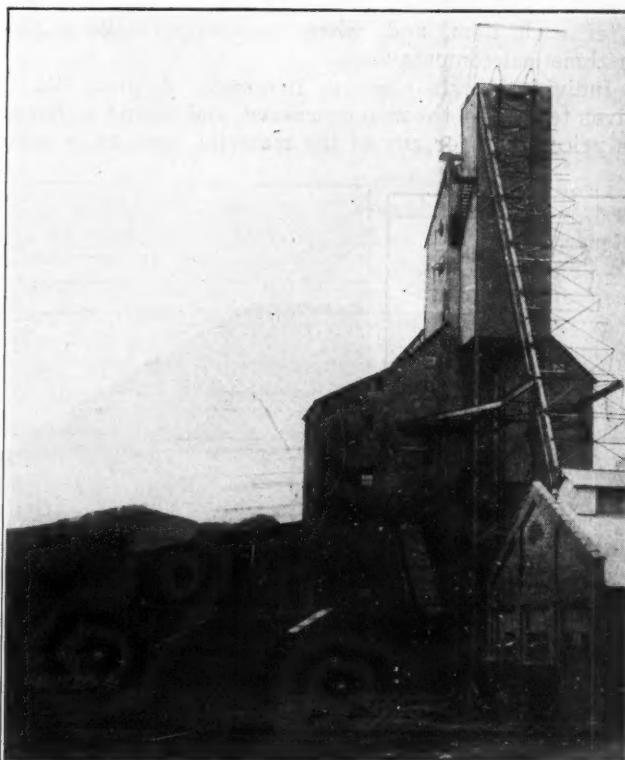
It is generally conceded that underground conditions make the working out of organization extremely difficult. In the factory the operative always is under the surveillance of an overseer who is able to direct his effort to the best possible advantage. Here, also, the men work in small quarters, so that many individuals may be directed by one man. Being in close contact with his men, such a boss has a good chance to gain their confidence. The direct result is co-operation and better organization.

Underground, however, the miners are scattered over a large territory. At best, a foreman or section boss can make only periodic inspections of the work being done by the miners at their several working places. As these visits are of short duration and occur at widely separated intervals, the miner is placed to a great extent upon his own resources. The natural result is that a wide diversity of method exists for any particular operation. When men work together the tendency of each is to watch the other and acquire his way of doing things. After a while each individual of a group unconsciously performs a given operation in the same manner as the others. A means must be afforded to overcome at least partly this great obstacle of scattered working places.

Granting that the surface management about a mine

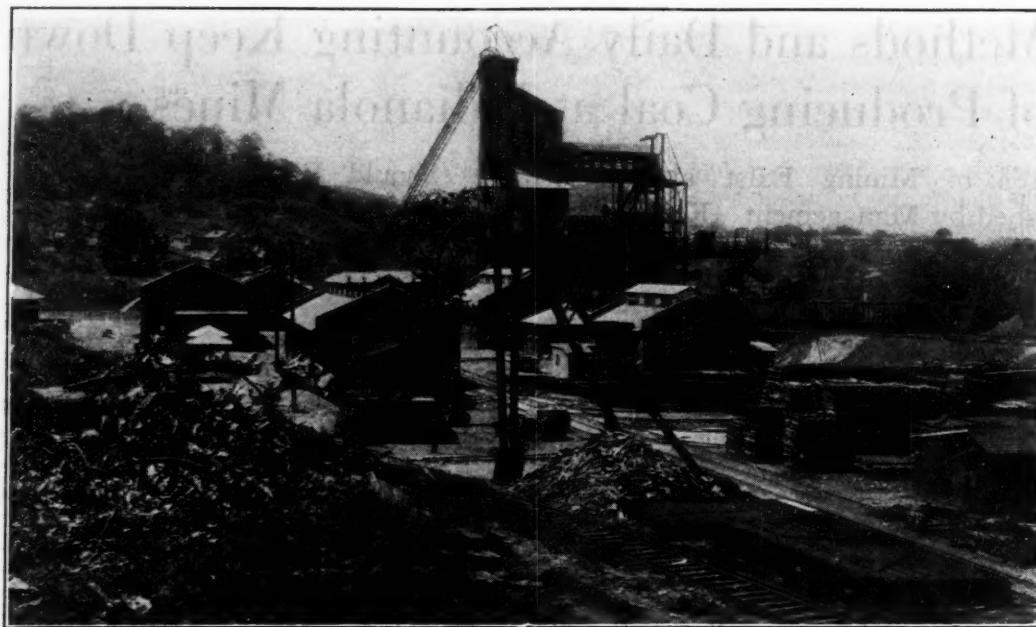
is satisfactory, an additional step would be to inculcate the proper spirit of efficiency and organization in the mine bosses. Probably the easiest way to bring this about is to place a certain amount of executive responsibility upon each of these supervisors. By dividing a mine into sections, each of which is intrusted to one man, a move is made toward a closer approach to system. Because the foreman is held directly responsible for the efficiency of the men in his charge, he in like manner will hold these men directly responsible for their work.

At the Indianola mine of the Inland Collieries Co., located at Indianola, Pa., twelve miles northeast of Pittsburgh, an excellent opportunity is afforded for a study of mine management. At this plant not only is everything done in a methodical manner but a complete record is kept of the costs, materials used, and the number of men on a job. A full record of the division of labor is maintained. Thus in giving the number of men required for a certain job a tabulation also is made of the occupational grouping or number of each man. Wherever possible, records are kept of individuals. This



VIEW OF THE HEADFRAME AND TIPPLE AT THE HOISTING SHAFT

On the left is an experimental washer and a small chemical laboratory where daily analyses are made. About once a month samples are taken for analysis at three points in the mine, the results being plotted on the mine map.



procedure is followed in keeping the records of motor crews, machine men and foremen. Such records afford comparison of the qualities of men holding similar jobs.

The underground workings at this mine are divided into four sections, each of which is placed under the care of a section foreman. This official is required to make out a daily report of the costs, the number of men on the job, the kind of work done and the material consumed. At first thought it might appear that such a plan is hardly feasible. In order to maintain uniform records that may be filed, printed report sheets are provided. These tabulate all the items to be covered in the report. The foreman need only fill in the blank left after each item, and, where necessary, make a few arithmetical computations.

Individual costs also are itemized. A price list is given to each of the men concerned, and should a change in price occur for any of the material used, he is noti-

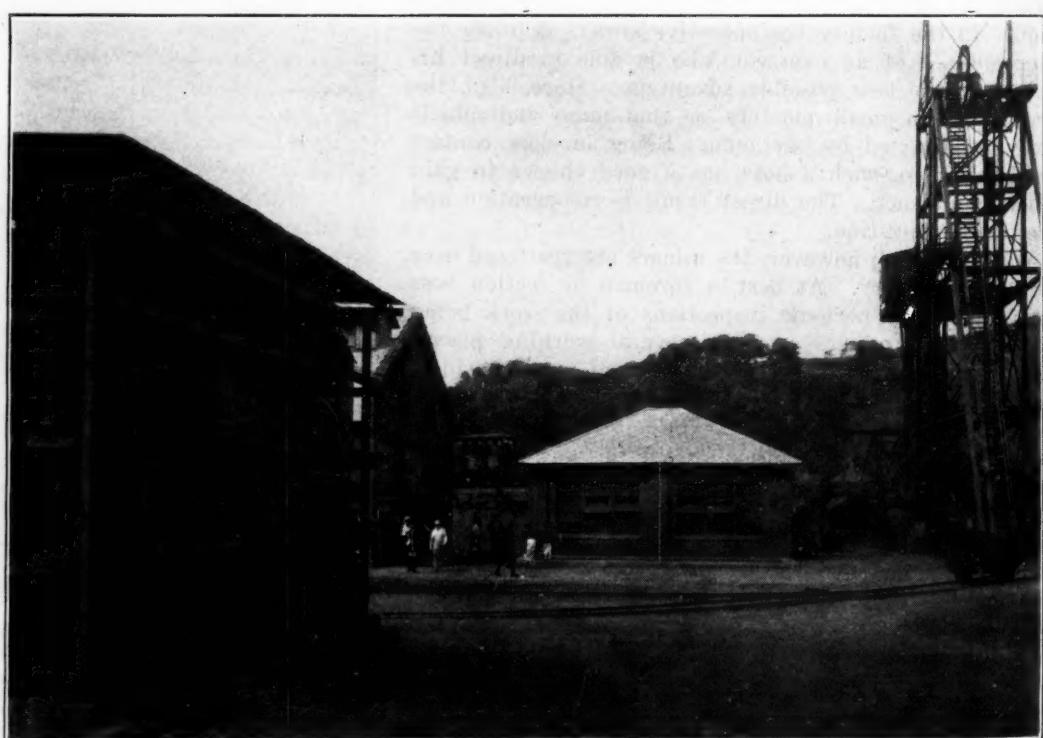
fied immediately. Before going home in the evening each foreman knows the cost of mining a ton of coal in his particular section. Even though the cost per ton must inevitably vary in the different sections of the mine, because of differing conditions, as well as the amount of company work necessary, these daily reports provide a sound basis for judging who is the best man. When this system was first installed the men were reluctant about adopting it, saying that they were not office clerks. Now they take it as a matter of course, and after a little practice only an extremely short time is required to compile the necessary data.

Records are kept of the daily output of the two trolley-locomotive crews employed in the main haulage. As a loaded trip comes into the "Big Bottom" the cars composing it are counted. A record also is made of the number of empties removed in the outgoing trip.

On the surface also daily reports are handed in by

Men Checking Out

The checkhouse lies between the man-and-material shaft and the bathhouse. On the left is the pipe rack. This illustration is convincing that even a mining plant with a big tonnage may be kept free of rubbish. The headframe is the same as the nearer of the two shown in the foregoing illustration.



Order as an Aid to Economy

With order of this kind an inventory is easily made, safety is assured, there is no waste of time hunting for material and morale is sustained. The derrick in the foreground is a handy means of lifting heavy material. Something of this kind should be at every plant.

the bosses. The costs are not included in these reports, however. The expense of doing surface work is figured and compiled in the office. Here also highly complete records are kept of the plant operations.

Records and statistics are kept on equipment also. One notable detail of this system is the procedure followed in keeping tab on the mine cars. Railroad companies number all their cars. Any work done upon any one of them is charged up to the account kept of that particular car. In the same way the Inland company has numbered all its mine cars. No greasing of journals is done underground. If a car needs repairing, it is sent to the surface shop, where the necessary work is performed upon it and charged against the car by number. Periodically, on an average of once every six months, each car is greased and inspected. The lubricant is applied on the surface by a skilled mechanic. At the same time a general inspection is made of the car and any defects it may possess are remedied or proper adjustments made.

A semi-annual inspection of the records discloses which cars have not been greased and inspected. These are sent for, and the necessary work done upon them. The results achieved prove this scheme to be ideal for

the maintenance of mine rolling stock. Out of the original 300 mine cars which were installed four years ago, only one has been lost, this occurring through a wreck. All the remaining cars are in excellent condition and giving highly satisfactory service. The type used has a composite frame of wood and steel, with sheet-steel body, and a capacity of three tons. All cars are equipped with Hyatt roller bearings.

The office building has been well located, and its convenience to all operations facilitates the keeping of complete statistics and accounts. It stands on the outer edge of the surface-building group within a few hundred feet of the shaft. The interior of this building is as modern and complete as can be found anywhere. It contains four rooms, namely, the general superintendent's office, the reception room, the general office and the engineering office. The engineering corps when not employed underground may work on mine maps and layouts. Should certain information required for the work in hand be unavailable, it is an easy matter for the corps to obtain it without going any great distance. Likewise, clerks compiling records may readily obtain information needed to complete them should any item be missing.

Ball Mills Pulverize Coal Almost Without Repair and Attendance Costs and with Minimum Power

Mill So Made That Large Balls Crush Coarser Material and Small Balls Finer Particles, Saving Power — Oversize Screened and Returned to Mill — Fines May Be Floated Away by Air — Tramp Iron Not Harmful but Useful

MINING PLANTS are beginning to pulverize and burn such coal as is too fine or too impure to suit the demands of the distant consumer. Coal also is being pulverized for the market, which is rapidly awakening to the value of atomized fuel as a material that burns almost without attention and with maximum economy.

For many years the metal industry, ferrous and non-ferrous alike, the cement and lime manufacturer and even the railroad industry has seen the advantages of pulverized coal. Apartment houses, office and public buildings are using it. It is being used under boilers. Perhaps no one is slower to see what it means to industry than is the coal man. He is letting the business slip from his fingers; he is not even utilizing powdered fuel at his plant, where by its use he could make available the bone coal which the market rightly refuses as too low a grade of product upon which to pay transportation charges and too expensive to handle because of the high costs of ash removal.

The difficulties and cost of pulverizing have been potent causes for the slow advances in the use of pulverized coal, though they have not measurably retarded the advance in the metal, cement and lime industries or hindered noticeably the development of the practice of pulverizing coal for sale.

It had been thought until recently that the finer the fuel was pulverized, the more efficient would be the burning. While this may be theoretically true, other conditions occur in the process of burning which make extremely fine pulverizing a waste of energy. It has been found that bituminous coal need not be pul-

verized finer than about 90 to 95 per cent through 100-mesh and 70 to 75 per cent through a 200-mesh screen, and that anthracite coal and coke need not be finer than about 85 per cent passing 200-mesh.

The more important factor is that the pulverized coal shall contain no "coarse oversize." By that is meant particles in the case of bituminous coal coarser than 65-mesh, and anthracite coal or coke coarser than 80-mesh, for if these particles do occur, "sparking" is noted during the burning process with resultant loss of burning efficiency. By "sparking" is meant the burning of the coarse particles which appear as small sparks as they drop out of the combustion zone to the ash pit before all the combustible has been consumed. The maintenance of a uniform product, free from coarse oversize, is a point of vital importance and one which controls the combustion efficiency to a great extent.

There are some who still advocate the use of very finely pulverized fuel, say up to 95 per cent passing a 200-mesh screen for bituminous coal and 97 to 98 per cent passing 200-mesh for anthracite coal and coke. It is evident that their experience has been with methods of pulverizing that require this fineness in order to prevent the occurrence of particles of over 65-mesh to 80-mesh in the finished product.

With the use of pulverized fuel a high combustion efficiency is maintained. This is particularly evident when burning under boilers, for here it is easy to make direct comparisons with other methods of firing. Even with comparatively low grades of fuel it is possible to burn the fuel so that less than 2 per cent of combus-

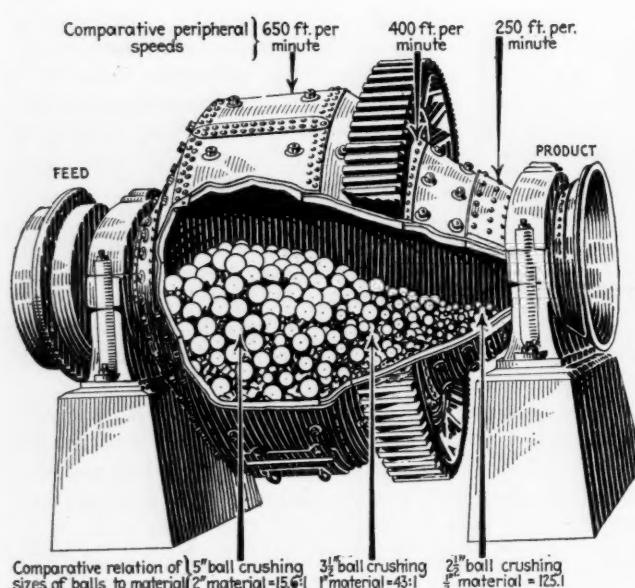


FIG. 1. BALL MILL FOR PULVERIZING ALL KINDS OF MATERIALS

Designed for the class of materials that a stamp mill might be called upon to handle, the mill will grind up anything without breaking down. Coal, slate, sandstone, firebrick, boiler ash, tramp iron and pyrite are all alike crushable or assimilable by this mill. If the material is large, heavy and unbreakable it is only another ball in the mill and will direct itself unerringly to that part of the machine where it is best fitted to crush other material to dust.

tible matter is lost in the ash with bituminous coal and less than 5 per cent with anthracite coal. This is done with only 10 to 15 per cent of excess air.

Compare this with the ordinary practice, where the amount of combustible in the ash ranges from 15 to 50 per cent and the amount of excess air required is from 75 to 150 per cent in hand firing and 50 to 75 per cent with stoker firing. The fact that the amount of excessive air is materially reduced and that there is no bed of fuel through which the air must pass, with resultant drop in pressure, makes possible the use of much smaller draft equipment.

Heating of the excess air where lump coal is used is one of the causes for its lower efficiency. If a one-inch cube of coal is pulverized so that 95 per cent will pass a 100-mesh screen, more than two hundred million particles are produced and the exposed surface area is increased 700 times. This gives some idea of why so little excess air is required and why it is possible to get such complete combustion. Boiler efficiencies of more than 85 per cent are being maintained by using pulverized fuel.

Lower grades of fuel can be economically burned and in many cases at a considerably lower cost than a higher grade of coal used in lump or slack form. This is true even with all drying and pulverizing costs charged to the burning of the lower-grade fuel. This low-grade fuel has in many cases been substituted for oil and gas. The ability to pulverize and efficiently burn low-grade fuel opens up an enormous field and will make it possible for large concerns to cut their power costs to a marked degree.

The principal low-grade fuels which are usually considered waste or are inefficiently burned, but which are rendered available for efficient use after being pulverized, are lignites, very low grades of bituminous coal, anthracite culm and coke breeze. The quantities of these low-grade fuels that are available is astounding.

The operation of any pulverized-fuel equipped boiler, kiln or furnace is very flexible. This is particularly

advantageous in boiler firing where it may be desirable to vary the load on short notice. The "stand-by" losses are much less than with the equivalent stoker installation. In fact there will be no appreciable loss in pressure during "stand-by" periods for several hours after the burner has been shut off. By closing up all dampers and inlets the radiant heat from the furnace brickwork is sufficient to maintain the pressure.

On the other hand, the main trouble with pulverized-fuel systems has been in the pulverizer itself. Several methods employed necessitate complicated mechanisms which require skilled mechanics to keep them in running condition. A loss in total operating time of 25 per cent is not unusual. Repair costs when grinding several grades of fuel, particularly anthracite coal and coke, have been so great as to cause operators to doubt the commercial practicability of burning fuel in pulverized form. It was with this knowledge that the engineers of the Hardinge Co. developed the Hardinge mill, operating at comparatively slow speed, of rugged construction, with low upkeep, specially designed for grinding fuel.

Grinding is a process which must be carried out in a logical manner to produce results commensurate with the energy expended. Authorities on methods of pulverizing materials recognize: (a) That reduction should be effected in steps or stages. (b) That material which is sufficiently fine should be removed as soon as reduced to this fineness. (c) That the force exerted should be proportioned to the work required.

In grinding, the particles undergoing reduction should be kept from becoming imbedded with other particles already pulverized. If the particles insufficiently ground are not kept separated, more energy will be required to effect their reduction, as it will be necessary to beat through the mass until the few large remaining particles have been reduced and the fine material is apt to cushion the coarser on its lower side. On the other hand, if the fine material has been removed and the larger particles exposed, their reduction will then be a simple matter.

As an example of proportionate power, compare the crushing of a large rock and a particle of sand. A heavy weight dropped from a considerable height is necessary to break the rock, but a tack hammer will easily reduce the particle of sand to an impalpable powder. Reversing this action, the tack hammer will never be able to break the large rock, whereas the heavy weight, although pulverizing the particle of sand, will consume far more energy than necessary. In other words, the law of economical grinding is simply a case of proportioning the energy to the work to be performed.

The Hardinge mill operates on the principle of a multiplicity of grinding bodies rolling in a rotating conical drum supported on hollow trunnions, through which the material passes into and out of the grinding zone. The grinding bodies in rolling and dropping grind and crush the material.

Owing to the conical shape, a condition exists in the mill which causes a natural segregation of both the grinding media and the material being ground. The coarse material on entering the mill through the hollow feed trunnion is crushed by the large balls (or pebbles) which always remain near the feed end, where the diameter is largest, owing to the classifying action of the cone.

As the particles are broken down they automatically



FIG. 2. LYITLE PLANT OF THE SUSQUEHANNA COLLIERIES CO. NEAR MINERSVILLE, PA.
Ball mills of the type described are used in the power plant of this colliery for the crushing of anthracite. The powdered coal thus manufactured is consumed under the boilers of the power plant.

work their way forward, being subjected to a gradually diminishing breaking and crushing effect as they decrease in size. The particles undergoing reduction reach the required degree of fineness and the discharge opening at the same time. This automatic classification of both the materials being reduced and the grinding media, proportions the energy expended to the work required; in other words, the fundamental principle of grinding is being obeyed.

This classification of material undergoing reduction, as well as of the grinding bodies, is illustrated in Fig. 1. This shows that in the largest diameter of the mill the incoming feed is crushed by the largest balls or pebbles, as the case may be, with the greatest superincumbent weight, with the greatest height of fall and highest peripheral speed. As the discharge opening is approached, the crushing force is gradually diminished, as the grinding media are smaller and are dropped from a lesser height. The material undergoing reduction travels toward the discharge end as fast as it is reduced, thus allowing the full force of the heavy blows to fall upon the coarser particles behind without being partly absorbed by fine material, as is the case when automatic segregation does not occur.

Where a very uniform product or high capacity is required it has been found more economical to use a classifier rather than to rely solely upon the classifying action of the cone. This classifier, when used, is so arranged as to operate with the mill as one unit and requires little attention.

There are two distinct types of Hardinge mills—the ball mill and the pebble mill. The ball mill is designed to use forged-steel or cast-iron balls as grinding media and the pebble mill to use flint pebbles or other similar grinding bodies. Both types are used for either wet or dry grinding. The general shape of the two types is the same, and they are built in nearly the same sizes. The construction differs to some extent because of the difference in character of the work which each is designed to perform.

The ball mills are built in a number of standard

sizes. The shell or drum consists of two plate-steel cones joined base to base with a short cylindrical wrapper piece, rolled, flanged, butt-strapped, riveted and caulked. The feed and discharge trunnions are made of cast steel and are machined on the inside faces of their joints with the plates before being riveted to the cones, insuring a perfect fit. This construction produces a cylindrical truss of great strength.

All rivet holes are drilled in the trunnion castings and countersunk on the inside of the shell, the rivets being flattened, leaving a smooth surface for the lining. When completely assembled and riveted, the drum is swung in a lathe, centered, the trunnions turned and polished and the gear ring turned true. This method of construction with the extreme care exercised in the plate work insures absolutely true alignment of gear and trunnions and produces a balanced, smooth-running machine requiring minimum power. All seams and joints of the shell are thoroughly caulked to insure an absolutely water- and dust-tight mill.

The main bearings are of ball-and-socket self-aligning construction and are amply large for any load which may be encountered in practice, thus insuring a low bearing pressure. They are bored to gage in order that all parts may be interchangeable. The countershaft bearings are adjustable by means of set screws so as to take up any wear of the gear and facilitate the aligning.

The feeder for handling dry coal is of the screw type, of special dustproof design. It is easily adjusted to control the amount of feed to the mill. Where the mill is used for wet grinding, a scoop feeder is supplied, which is simple in operation and requires no attention. The lining consists of a combination of chilled charcoal-iron plates and alloy-steel wearing bars. This combination is considerably less expensive than an all-steel lining and has a life well in excess of five years when the mill is used for grinding coal or coke dry. Either forged-steel or cast-iron balls are used as grinding media. In all cases the ball charge is designed to fit the actual work to be performed.

The ball mill is a slow-speed machine, namely, with

20 to 28 r.p.m. as a maximum for the large sizes; has no complicated mechanisms and, aside from balls, has few wearing parts. There is practically nothing to get out of order. When properly set up and adjusted it requires little attention and should run for several years without requiring repairs, aside from the addition of a few balls from time to time.

For fuel pulverization the ball mill is used primarily where it is desired to grind from sizes up to 2 in. to the desired degree of fineness. It usually is operated in conjunction with an electrically vibrated screen or an air separator. It is a compact self-contained unit, and has a large capacity for the floor space required.

As the name implies, the Hardinge pebble mill uses as grinding media pebbles of flint or similar material harder or much larger than the material being ground. The lining is also non-metallic, being composed of silica blocks.

The construction of the pebble mill is similar to that of the ball mill, but is considerably lighter, owing to the greatly decreased weight of grinding media and lining. The power required and the capacities obtained also are considerably less, as would be expected. The pebble mill is being extensively used for grinding many classes of materials, but its field, in the case of pulverized fuels, is confined to special problems.

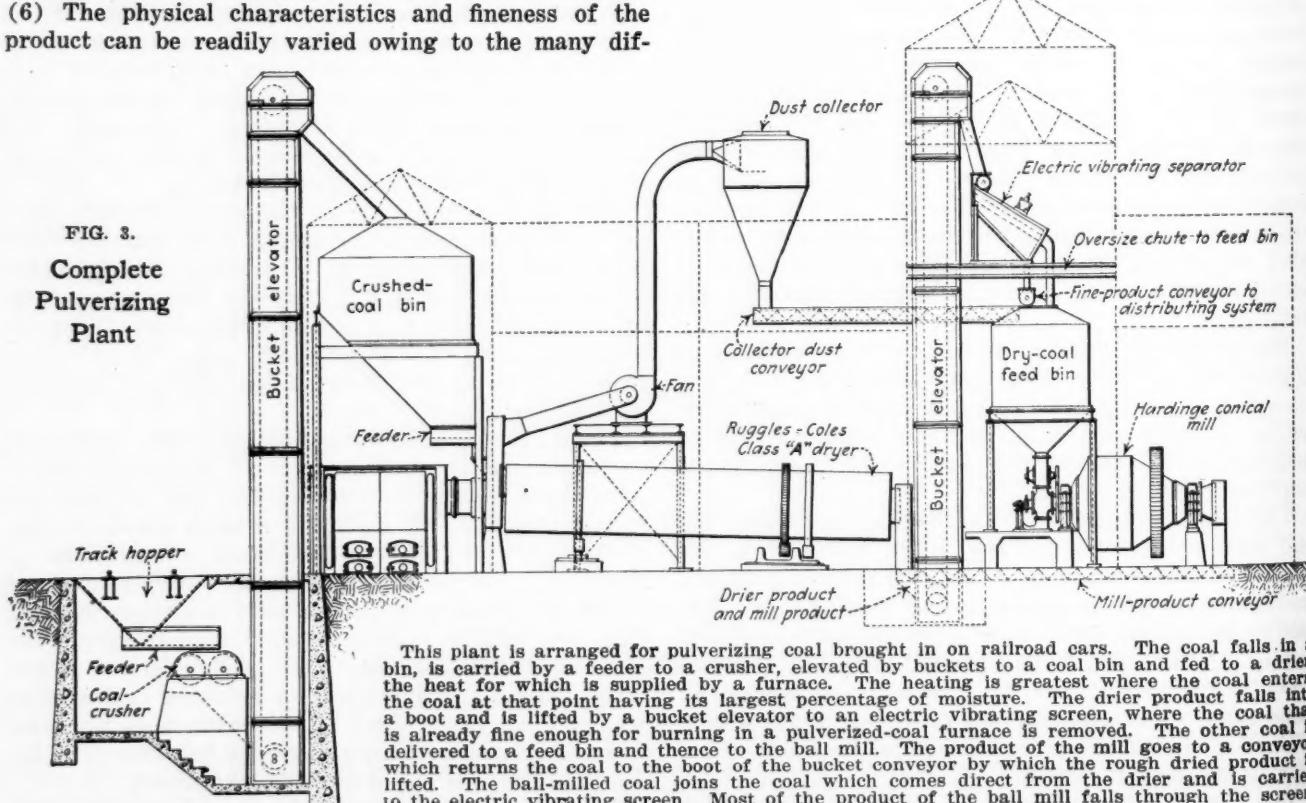
The advantages of the conical mill are: (1) Power is saved, the energy being proportioned to the work performed. (2) The range of efficient grinding for a given size is large, owing to the segregation of the different sizes of grinding media and material. (3) The capacity for a given unit is large, owing to the rapid circulation of the ground material by the classifying action of the discharge cone. (4) The wear of both grinding media and lining is light, owing to the classifying action and circulation in the mill and the trunnion discharge. (5) The conical shape results in extreme rigidity and simplicity of construction. Mechanical troubles during operation are almost unknown. (6) The physical characteristics and fineness of the product can be readily varied owing to the many dif-

ferent methods of controlling the operation of the conical mill. (7) The floor space and headroom required for a conical mill installation are unusually small, owing to the compact method of driving and the fact that the mill is self-contained.

(8) Owing to the truss construction of the conical mill, a great weight of metal is not required to insure sufficient strength. This lighter construction saves in the cost of transportation; also lighter foundations may be used. (9) The conical mill operates at slow speed, has few moving and wearing parts, and requires relatively little lubrication. The number of parts subject to possible replacement are few and inexpensive. (10) The mill is watertight when used for wet grinding and dusttight when used for dry grinding. (11) Where large capacities are required, few conical mills need be used, as large capacity units are built, thus eliminating the necessity of a large battery of small units. (12) The use of magnetic separators to remove tramp iron from the feed is unnecessary. The admittance of such material to the mill will do no damage; in fact will actually aid in the grinding.

The arrangement of a typical pulverized fuel plant designed by Hardinge Co. engineers for firing cement kilns, furnaces, boilers, etc., is substantially as indicated in Fig. 3. From the cars the coal is dumped into a track hopper, thence fed directly to a crusher to reduce it to 1 in. or smaller, and thence elevated by bucket elevator to the Ruggles-Coles drier storage bin. The crusher is equipped with a bypass making it possible for fine coal to be fed to the elevator without operating the crusher. From the drier storage bin the coal is fed to the drier and dried to a moisture content of approximately 1 per cent. It is then elevated to the separator, where the fine material passes directly to the distributing system and the oversize goes to a small storage bin ready for feeding to the Hardinge conical mill. No magnetic separator need

FIG. 3.
Complete
Pulverizing
Plant



This plant is arranged for pulverizing coal brought in on railroad cars. The coal falls in a bin, is carried by a feeder to a crusher, elevated by buckets to a coal bin and fed to a drier, the heat for which is supplied by a furnace. The heating is greatest where the coal enters, the coal at that point having its largest percentage of moisture. The drier product falls into a boot and is lifted by a bucket elevator to an electric vibrating screen, where the coal that is already fine enough for burning in a pulverized-coal furnace is removed. The other coal is delivered to a feed bin and thence to the ball mill. The product of the mill goes to a conveyor which returns the coal to the boot of the bucket conveyor by which the rough dried product is lifted. The ball-milled coal joins the coal which comes direct from the drier and is carried to the electric vibrating screen. Most of the product of the ball mill falls through the screen.

November 24, 1921

be installed ahead of the mill to remove small pieces of tramp iron. This saves from 1 to 2 kw. in power, and is a considerable saving in installation cost. It also eliminates the necessity of supplying direct-current.

From the feed bin the coal passes through the mill, is pulverized and discharged to conveying equipment for returning to the separator. This separator is either an electrically-vibrated screen, of novel construction to insure large capacity per unit and long life, or an air separator. From the separator the oversize is returned to the feed bin of the mill for regrinding, while the finished product, free from coarse particles, is conveyed to storage. If the distance between this storage and the burners is short, ordinary screw conveyors are used to transport the pulverized fuel; otherwise, pneumatic conveying is employed. Ahead of the burners the coal is diverted to small bins under which are feeders which accurately control the exact amount of fuel that will be admitted to the burners.

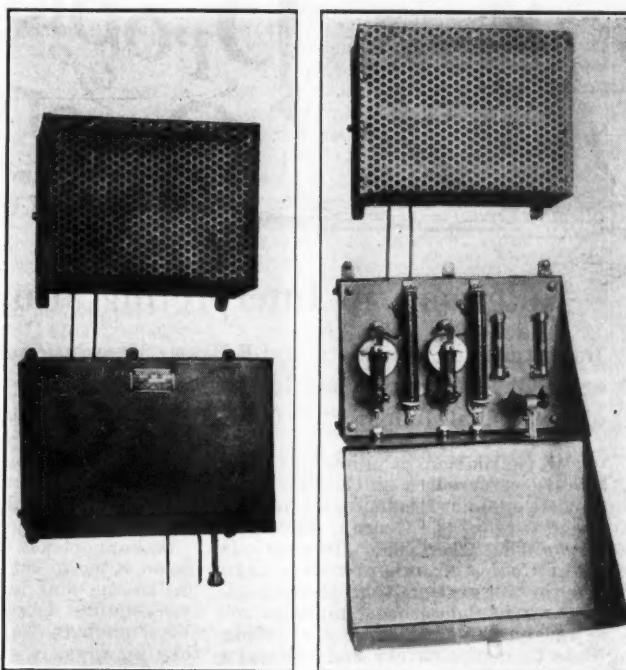
Attention is called in particular to the arrangement of the Hardinge mill and separator. This arrangement is particularly advantageous when the coal is in a fairly fine state as delivered from the drier. Separation ahead of the mill increases the capacity of the unit and also increases the grinding capacity of the pulverizer. When the electric separator is used with this arrangement, a two-surface screen is desirable, the first surface being a fairly coarse screen which removes coarse material and acts as a protector for the fine screen underneath. The two-surface screen increases the efficiency of operation as well as the life of screen cloth. While the air separator saves in some cases the installation of another elevator, more power is required to operate the system than with equivalent electric separators.

To exhibit how easy it is to operate these mills it is only necessary to say that in a mill grinding material much harder than coal, sixty-four of these conical mills 8 ft. in diameter are being attended by only two men, which is equivalent to thirty-two mills per employee.

Automatic Starter Guards Small Motors From Burning Out Should They Stall

AUTOMATIC STARTERS controlling direct-current motors of 10 hp. or less often are installed in relatively remote or inaccessible places where the operating conditions are by no means of the best. In many instances such places are damp or filled with fumes that corrode metal surfaces. Furthermore through lack of attention it frequently happens that the equipment to be driven becomes clogged, jammed or blocked in some manner that prevents the motor from operating when the automatic starter functions. Adverse atmospheric conditions cause the equipment and especially the starting resistance to deteriorate. If the machine to be driven is blocked, the resistance or the motor or both are burned out. Demand has, therefore, been created for a starter able to withstand these adverse conditions.

To meet them the Automatic Reclosing Circuit Breaker Co., of Columbus, Ohio, has developed and placed on the market what it designates as its type SS automatic direct-current motor starter. This device is designed for 250 or 500-volt service and is built in capacities of 3, 5, 7½ and 10 hp. It is of the counter e.m.f. type with one step of resistance, which is automatically cut out when the motor comes up to speed. This resistance is



STARTER FOR SMALL MOTORS THAT CAN BE SAFELY OPERATED FROM A DISTANCE

Anyone who starts a small fan in an office, pullman car or his own apartment knows how apt it is to stick. All small motors tend to act that way, and if the current is left on, the motor may burn out, the electricity which should do the work merely making heat. This starter obviates that possibility.

made of nickel and chromium-alloy wire, which is strongly resistant to corrosion and is of such value that it limits the starting current to that taken by the motor at full load yet is of such capacity that it will carry this full-load current indefinitely.

These details of design give this starter the ability to protect both itself and the machine to which it is attached against burning out should the motor fail to start its load. It also assures the longest possible life under adverse atmospheric conditions.

This starter can be applied satisfactorily in all cases where the starting torque does not exceed the full-load torque of the motor. In most of the installations of motors of this capacity it is found that the starting torque always is the smaller. Especially is this true of motors driving pumps, blowers and rotating apparatus not possessing excessive static or starting friction upon which the load builds up with the acceleration or appears only after the motor has come up to speed.

The starting resistance in the device being described is completely housed within a perforated sheet-iron box provided with feet for separate mounting on wall, posts, cross arms, or in some other convenient place. Connections between the starting panel and resistance are made at the time of installation. The cover and the box which together house the panel are provided with lugs so that they can be padlocked and the contents made secure against molestation by unauthorized persons. Fig. 1 shows the panel box with the cover closed and Fig. 2 shows it with the cover open.

All constructional details of this starter are rigid and substantial and all current-carrying parts are of ample capacity. The primary object in designing this device was to produce a trustworthy and durable starter without sacrifice of either reliability or durability. This has been attained by employing an ample amount of material assembled with the best quality of workmanship.



Problems of Operating Men

Edited by James T. Beard



Judgment in Interpreting Mining Laws

Importance of Adequate and Efficient Ventilation in Mines Generating Gas—Need of Clear Interpretation of Mining Laws—Menace of Individual Judgment—Common Practices in Violation of Law

GOOD ventilation in mines has been aptly referred to as the "Foundation of Economic Production," in the excellent letter of George Edwards, *Coal Age*, Oct. 27, p. 685. In previous issues of *Coal Age*, other writers have offered the suggestion that mines generating gas in dangerous quantities require the employment of a ventilating engineer to insure safety and efficiency in operation.

Our mining laws make no mention of the employment of a ventilating engineer. But, to my mind, the suggestion is not far out of the way. Experience in the gaseous mines of the anthracite region has proved that the most important problem, in the ventilation of those mines, is maintaining a proper supply of pure air at the working faces.

It will be generally claimed that any mine foreman of experience should be capable of arranging an adequate plan of ventilation that will be both practical and efficient. At the same time, it cannot be denied that the duties of a foreman in charge of a large mine are so numerous and varied that he should receive all the assistance that can be given him, in respect to making the mine safe and a healthful place in which to work.

QUALIFIED ASSISTANT FOREMEN

Every anthracite mine, today, employs a number of assistant foremen who are qualified men and expected to look after the circulation in their several districts. However, the ventilation of the working faces is only one item of the many they must look after and arrange. It is quite probable that these other duties may frequently cause them to overlook some important matter relating to ventilation that should have immediate attention.

It is not my idea that a ventilating engineer or inspector should be clothed with authority to over-ride the foreman whom the law makes responsible for all matters pertaining to the ventilation of the mine. My thought is that the importance of ventilation is so great it should receive special attention, and a ventilating engineer would be in a position to criticise and suggest plans to the foreman which that official would appreciate.

In this connection, let me say the mining law relating to ventilation should always be clear and explicit. It frequently happens, however, that it is capable of a varied interpretation, according to the judgment of the person. I regret to say that there are

many men employed in our mines who seem to regard themselves privileged to interpret the law in any way that best pleases them.

In support of this statement, allow me to refer to the anthracite law relating to the building of stoppings. The law requires (Art. 10, Sec. 8) that all crosscuts between main intake and return airways, in every district, shall be permanently closed with substantial stoppings of brick or other suitable building material laid in mortar or cement whenever practicable. The law forbids the use of planks for that purpose, except temporarily.

DISREGARD OF LAW A FREQUENT CAUSE OF ACCIDENT

In too many instances, the disregard of this law, by building such stoppings in a haphazard manner, has caused accidents that should have been avoided. Many seem to consider the law relating to stoppings as having a wide scope, and have taken advantage of the provision made for the temporary use of planks to close an opening, for a time, where proper ventilation will later require a substantial stopping.

At times I have observed as many as ten or fifteen of the so-called "temporary stoppings" of planks, on a heading where the air at the working face was deficient. This condition would not be possible if the law specified the length of time a temporary stopping should be permitted to stand.

Again, where the law requires (Sec. 11,) two main doors to be so adjusted that when one is open the other will

be closed, would any one be justified in understanding that one wooden door and one canvas door could be employed without violating the statute?

In working a panel of chambers turned off a heading, the question of maintaining an adequate supply of air at the faces of those chambers should not be left to the judgment of men who are willing to interpret the law according to their own inclinations. Many instances could be mentioned in which the personal judgment of the man in charge has proved extremely dangerous.

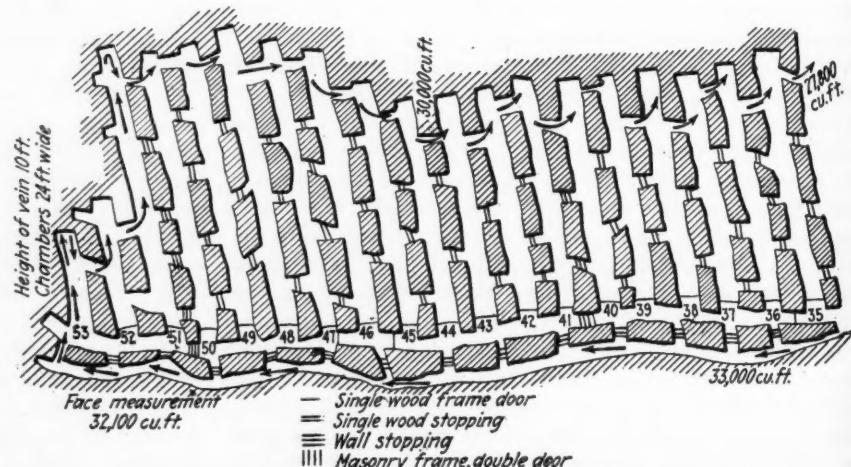
EFFICIENT MINE VENTILATION

In strong contrast with this careless interpretation of the law, I enclose a sketch of an efficiently ventilated mine where gas was generated in large quantities. Only the last twenty chambers are here shown, on a heading where fifty-three chambers have been turned. It will be noticed, however, that a line of substantial stoppings is maintained at every tenth chamber, and a double door is hung on the gangway at the mouth of that chamber.

The purpose of this plan was to gather up the air that would leak through the temporary stoppings and force it to travel the faces of the chambers. At this particular mine the foreman would not tolerate any chance individual judgment, but carried out the meaning of the mining law in a way to insure the highest degree of safety.

JUDGMENT IN RESPECT TO NEED OF SAFETY LAMPS

The question of the exercise of judgment as to whether it is necessary to supply miners, in some districts of the anthracite mines, with safety lamps offers another menace to safety, since man's judgment varies with the individual. It should be distinctly understood that the law specifies (Art. 12, Rule 9) "Where there is likely to be an



SHOWING PORTION OF A WELL VENTILATED MINE

accumulation of explosive gases, or in any working in which danger is imminent from explosive gases, no light or fire other than a locked safety lamp shall be allowed or used."

When superintendents and foremen come to realize the importance of rigidly observing these important clauses of the law, we can look forward to making some progress in reducing accidents in mines. The fact that men are not expecting to encounter gas has been the cause of more accidents than would be believed.

PLACES REPORTED "FREE OF GAS" MAY GENERATE GAS QUICKLY

Because working places are reported by the fireboss as being clear of gas, in the morning, does not justify the assumption that the place will remain free from gas throughout the day. It is my opinion that wherever a fireboss is employed to examine the mine workings for gas, in the morning, the miner should have a safety lamp with which to make a similar examination of his place before starting to work and before and after firing a blast, in order to fully comply with the law.

The fact that gas has accumulated in a working place and been cleared out by brattice makes it safe to say that more gas will accumulate in that place, in a short time, again. Anything may occur to short circuit the air current, temporarily, with the result that the place would become unsafe for work before ventilation is restored.

Some years ago, I recall, that a certain superintendent considered it an unnecessary expense to provide each miner with a safety lamp, as long as the fireboss reported the workings clear of gas. Things went along all right for about three months, when a fall of rock broke down an air bridge. This short-circuited the air and an explosion followed at the working face where the miners were unwarmed of the condition. Several of the men were burned and others badly shaken up.

These are questions of special interest to the anthracite mines and, in my opinion, there is growing need of a conference of state mine inspectors, superintendents and foremen to consider and interpret the meaning of the mining law in many of these respects, where the language of the law is vague. Only in this way can we hope to eliminate individual judgment, which is now so largely practiced.

JOSEPH R. THOMAS.

Plymouth, Pa.

Passing of the Flame Safety Lamp

Resolutions adopted by the Mine Inspectors' Institute of America—Electric cap lamps to replace safety lamps, except in testing for gas.

WITH deep interest I read the resolutions adopted by the Mine Inspectors' Institute of America, at its meeting in Charleston, W. Va., last July. A report of this meeting, together with the resolutions adopted, appeared in *Coal Age*, Aug. 25, p. 306.

While these resolutions cover a number of important points relating to the safe mining of coal, I will refer only to that relating to the use of flame safety lamps. After referring to the general introduction of electric cap lamps in mines, the resolution expresses the conclusion and belief of

the mine inspectors that the flame safety lamp "should be discarded and no longer used, except for the purpose of testing for gas."

The average coal miner will not be sorry to learn that the days of the safety lamp, as used to give him light in his working place, are fast being numbered. When in use the safety lamp must be carried in the hand, hung to a post if that is convenient, or set on the floor.

Not only is the light given by a safety lamp much inferior to that of an open light, but the lamp itself is heavy and cumbersome. If set on the floor it is liable to be knocked over and injured by a stroke of the pick or otherwise and when hung on a post it gives a poor light by which to work.

At the best, the use of the lamp is a menace to the safety of the miner, without special care on his part. The resolution continues to urge, instead, the use of electric lamps approved by the Federal Bureau of Mines, as working lamps, "provided the regular and frequent inspection of the working places is made by competent safety inspectors, by means of gauze safety lamps."

Assuming that the miners working in a mine are equipped with a standard type of electric cap lamp and are further assured of protection from danger of gas in their places, by the presence of a reliable and competent safety inspector, who makes frequent tests for gas and sees that the necessary amount of air is in circulation, they would feel safe and work to better advantage.

MEN WORK BETTER WHEN FEELING SAFE

Under such conditions, there is no doubt but that every miner would soon find he could accomplish more, in less time, than with either the open flame lamp or the safety lamp, either of which require more attention than the electric lamp. It is my honest belief that there would be fewer accidents occurring at the face, because the miner would be provided with a better light and able to detect danger quicker than when working in a dim light.

Let me suggest, here, that it would be wise to have all trusted company men, including timbermen, entrymen and pumpmen, carry a flame safety lamp in addition to the electric cap lamp. Even when the mine examiner reports "no gas" above a big fall, timbermen would feel safer if they made the examination for themselves when working in that region.

Experience has taught me that a flame safety lamp, in use every day in a miner's working place, impairs his eyesight. He is blinded by the glare of the light, which is continually in his eyes. Also, safety lamps require careful cleaning and inspection by competent lampmen, at the close of each shift, which costs more than the care and recharging of electric lamps and batteries.

In a mine where I worked some years ago, I was required to test my lamp after it was handed me by the lampman. Then an overseer tested it again before I was allowed to leave the lamphouse. Again, another inspector would test the lamp before I entered the cage. All this required time. Finally, another inspection was made at the bottom of the shaft and,

frequently, through the day the lamp was examined by the overseer.

Our lamps were assembled in such a way that the bonnet was screwed over the standards and had to be removed in order to inspect the gauze of the lamp, which was held secure by the standards. I am greatly in favor of the use of electric cap lamps and believe that every miner should be equipped with such a lamp, which will make his work safer while he is in the mine.

GASTON F. LIBIEZ.

Peru, Ill.

Smelling the Gas

Faculty of smelling odors an important requirement of mine foremen and firebosses—How the miner is able to detect the presence of marsh gas by smelling explained.

REFERRING to the question asked by an inquirer, in *Coal Age*, Sept. 29, p. 497, concerning whether a man who is unable to detect odors is competent to serve as a mine foreman, assistant foreman or fireboss, let me say that I heartily agree with the editor in the view expressed that such a person is unfit for any of the positions named.

In several instances, to my knowledge, the mine foreman or his assistant has been able to detect a mine fire from the odor borne on the air current. In each case, the odor was carefully traced to the point where fire was found and extinguished before it had assumed dangerous proportions.

Without this acute sense of smell on the part of mine official in charge, it would frequently happen that a gob fire would remain undiscovered, until it had gained such headway as to require much labor and expense to prevent damage and loss. On the other hand, the peculiar odor of a fire smoldering in the mine makes it readily detected by one whose faculty of smell is unimpaired.

HOW THE MINER SMELLS THE GAS BURNING IN HIS LAMP

This reminds me of the question that has been so often argued in reference to whether it is possible for a miner to detect marsh gas by the sense of smell. Authorities on mine gases and ventilation say that methane or marsh gas (CH_4) has no smell and cannot be detected in this manner, which is undoubtedly true of the gas itself. But the conditions under which a miner becomes aware of the presence of this gas involves the burning of the gas in his lamp.

Strange as it may seem at first sight, a miner of long experience in mine gases, can detect the odor arising from the burning of a small percentage of marsh gas contained in the air entering his lamp. This percentage is so small that the presence of the gas cannot be detected by observing the flame of the lamp. No visible cap is formed to indicate the presence of gas in the air.

While it may be argued that so small a percentage of gas in mine air is not dangerous under ordinary conditions, it must be admitted that it is not good practice to ignore the fact that gas is being generated in the place. A wise foreman will immediately take steps to increase the circulation of air in a place where he knows gas is being generated, however small the quantity.

In my opinion, the best argument that can be advanced in support of the claim that a good miner can detect the presence of a small percentage of gas by the smell due to its burning in his lamp, is to say that a piece of cloth has no smell until it is burned, when the presence of the burning cloth is quickly detected.

FOREMAN FINDS SMALL AMOUNT OF GAS BY THE SMELL

Some time ago, one of my firebosses reported a place as generating some gas. An hour elapsed before I was able to visit the place and I could not then detect any gas by observing the flame of the lamp. However, its presence was easily detected by the odor coming from my lamp and I arranged at once to increase the air in that place.

Let me say in closing, many mine officials under such circumstances would have ignored the claim of the fireboss that he had found gas in the place. But, to my way of thinking, only this kind of co-operation between mine officials will produce results and prevent the disasters that we have experienced during the last thirty years. Let every mine foreman trust his firebosses and act on their word promptly with confidence.

In my opinion, no man should be given a place of responsibility underground whose sense of smell is defective in any degree. Such a one is wholly unfit to be made responsible for the lives of men working in the mine. Johnstown, Pa.

Foreman.

Ventilating Two Seams

Mention made of ten seams of coal ventilated by a single fan—Cause of trouble in the ventilation of two seams ascribed to size of shaft being too small.

REFERRING to the question asked R by "Master Mechanic," *Coal Age*, Oct. 6, p. 542, regarding the ventilating of two seams of coal by a single fan, it appears to me there should be no difficulty experienced in this undertaking. The fan is said to be capable of producing 150,000 cu. ft. of air per minute, which should be ample for the ventilation of the two mines under ordinary conditions.

Some time ago I worked in a mine, in the old country, where a single fan ventilated ten different seams all of which pitched from 20 to 80 deg. As far as my knowledge goes, there was no trouble in securing a good circulation of air in each of the seams. The air was conducted down the shaft to the lowermost level, a portion of the current being taken off, at certain levels, and each split circulated through two or more of the seams.

AIR SHAFT BELIEVED TOO SMALL

In the present instance, it seems to me that the trouble described by this inquirer arises from the fact that the second shaft sunk to connect the two mines has too small a sectional area. He states that this shaft is only 5 x 10 ft. in section and 260 ft. deep.

My opinion is that this shaft, for the purposes of ventilation, should have been at least 8 x 12 ft. in section and have had a tight division wall in the center. That would provide two air compartments, each 6 x 8 ft. in section for the return currents.

I would operate the fan as a blower,

forcing the main current down to the lower seam, but splitting the air in the downcast, so as to provide two currents, one to ventilate the upper seam and the other circulating through the lower seam. Use the two compartments of the connecting shaft for the return air current from each respective seam.

If this plan is followed, I am convinced there will be no trouble in getting good ventilation in each mine, if the air is properly handled by an experienced man.

MINE FOREMAN.
Collinsville, Ill.

ANOTHER LETTER

WITH a large shaft and a fan capable of producing 150,000 cu. ft. of air per minute, there should be no difficulty in ventilating two seams of coal, the one overlying the other. Indeed, the air column that would form in a shaft connecting two seams and 260 ft. deep would furnish almost sufficient natural ventilation for both of these mines.

In regard to the suggestion of installing a booster fan in the upper seam, let me say that it would only add to the

expense for equipment and, as stated in the reply to this inquiry (p. 542), could not be expected to be of much assistance in securing better ventilation.

Although the inquirer does not state that this is a drift mine, I am inclined to think that these two seams are opened, separately, as drift mines and that the shaft sunk later to connect the two seams was intended to improve the ventilation in each.

Assuming that to be the case, my plan would be to make the connecting shaft the upcast for both mines. I assume that the fan is located at the top of this shaft and if operated on the exhaust principle it should give good results. The air would enter each mine by the drift opening and, after circulating through the workings would pass up the fan shaft, which would be the return for both mines.

In order to proportion the air according to the requirements in the two mines it will be necessary to install a regulator in one of them. I would drive the airways in the upper seam so as to give them a larger sectional area than those in the mine below. All airways should be kept free from obstructions.

—, Tenn.

FOREMAN.

**Inquiries
Of General Interest**

Reporting Work of Cutting Machines

Report to Show Time of Starting and Finishing Each Cut—Height of Coal, Width and Depth of Cut Also Given—To Make Report Complete, Number of Cars Loaded and Make of Machine Important

BEING desirous of securing a form of report best adapted for showing the work performed in cutting coal with machines, I am writing to ask if *Coal Age* and its practical readers can suggest something along this line. We believe this would be helpful not only to ourselves but to many others in the tabulation of results.

SUPERINTENDENT.

Ramage, W. Va.

After some correspondence with large coal companies using machines, in different states, we have secured the following

the height of coal, width and depth of cut and the number of cars loaded, using 2½-ton cars. The form of report follows:

The time spent in taking the measurements and recording them will be amply repaid by the information gained from the later study of the report.

We shall be glad to have the suggestions of others in reference to reporting the work of cutting machines. It is readily understood that the speed of cutting will depend much on the hardness and purity of the coal or other material in which the cut is made.

RECORD OF JEFFREY COAL-CUTTING MACHINE

			Coal Co.		W. Va.		
Start	Finish	Place	Height of Coal	Depth	Cut Width	Cars	Time
7:00	7:11	Main entry, traveled 20 ft.	7' 1"	8'	15'	12	11
7:12	7:20	Breakthrough, traveled 100 ft.	7' 3"	8'	17'	14	8
7:28	7:43	Breakthrough, traveled 75 ft.	7' 1"	8.3'	14'	11	15
7:45	8:00	Main air course, traveled 50 ft.	7' 2"	8.0'	15'	12	15
8:10	8:25	Breakthrough, traveled 40 ft.	7' 2"	8.2'	14'	11	15
8:28	8:40	Breakthrough, traveled 250 ft.	7' 3"	8.0'	15'	12	12
8:48	9:05	No. 1 room, fuse burned out	7' 2"	7.0'	21'	14	17
9:10	9:15	Started again, traveled 70 ft. . . . .	...	...	...	...	...
9:20	9:28	Changing bits . . . . .	...	...	...	...	...
9:28	9:43	No. 2 room, traveled 90 ft.	7' 9"	7.9'	22'	20	15
9:50	10:07	Breakthrough, traveled 180 ft.	7' 3"	7.0'	15'	10	17
10:15	10:37	No. 3 room, traveled 240 ft.	7' 0"	8.2'	21'	16	22
10:39	10:45	Changing bits . . . . .	...	...	...	...	...
10:45	11:00	No. 4 room	7' 3"	8.0'	21'	16	15

lowing form of tabulating the work of coal cutters, which appears to give very complete results in machine mining.

The report shows not only the time of starting and finishing each cut, but

In this connection, it is interesting to state that a recent test, with a Jeffrey machine, showed a total of 1,560 tons of 7-ft. coal cut in 12½ hr., or an average of 125 tons of this coal per hour.

Examination Questions Answered

Alabama First-Class Examination Birmingham, July 25-28, 1921

(Selected Questions)

QUESTION — Where collars and mudsills are required in timbering a slope, what precaution should be used in bracing them to prevent their slipping when taking the weight?

ANSWER — Where mudsills are used as cross-sills, in timbering a slope, they should be hitched into the rib on each side of the track. The posts standing on the sills should be given a slight inclination up the pitch and the mudsill should be tilted in its bed to correspond and give a good footing to the posts. In order to prevent the posts from splitting when taking the weight, cap-pieces of soft wood and of sufficient size to completely cover the head of the post are used; or the latter should be notched into the collar in a manner that will give the head of the post a good

practice, however, this condition is seldom realized throughout the mine. In order to reduce the danger from dust to a minimum, more reliance must be placed on cleaning up the roads and working places and allow no accumulations of dust in them. In addition to that, all roads and other openings should be well sprinkled at regular short intervals.

QUESTION — Explain the use of hose for watering mine workings and state how, when and where this should be used.

ANSWER — Hose are used with good effect for watering the roads and working faces in rooms and chambers, provided there is a good pipe system on the entry or gangway. The hose being attached to a nozzle at the mouth of each room, permits the face of the coal to be thoroughly watered. This should always be done previous to firing a shot in the place.

QUESTION — What methods or plans other than watering or wetting are used to overcome or remove the danger of dust?

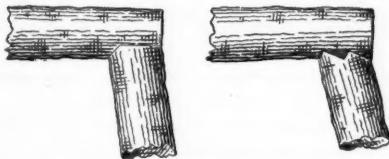
ANSWER — Strict rules and regulations should be made and enforced in regard to blasting. The kind and amount of powder to be used and the depth and location of the hole should be clearly specified. The best practice is to employ competent shotfirers to examine, charge and fire all shots that in their judgment are safe. No undue accumulation of dust or fine coal should be permitted in any working place or on the roads.

QUESTION — In a mine where the roof is fairly good, what distance apart and how near the face would you have room timbers set?

ANSWER — Here again, conditions must determine the distance apart of the timbers, and how near to the face the first row should be stood. Under fairly good roof and floor, in a practically level seam, the distance apart of room timbers may vary from 4 to 6 ft. In machine mining, the general practice is to set the first row of timbers at a distance from the coal face sufficient to allow the machine to pass without withdrawing the timbers. This distance will vary with the type of machine in use.

QUESTION — How would you set entry timbers in a 31-ft. seam when shooting down the top for mule height?

ANSWER — Much will depend on the nature of the roof strata to be taken down and the kind of roof above it. Only sufficient of the old timbers should be drawn, before the shot is fired, to permit the roof to fall. The new timber should follow up the work as closely as practicable, in order to furnish the needed protection for the workmen. Whether post timbering or double timbering should be employed,



bearing. Two forms of such notches are shown in the accompanying figure. The foot of the post should also be notched or boxed into the mudsill.

QUESTION — Name and explain the different methods employed for artificially keeping a mine in proper damp condition and humidifying the ventilating current.

ANSWER — At times, water cars are used for sprinkling the roads. More efficient practice, however, is to install a pipe system for sprinkling or spraying the roads and working places. For the purpose of humidifying the mine air, the exhaust steam of an engine or pump is often discharged into the intake air-course. Of these different methods, the pipe system for spraying the roads and air-courses is the most effective.

QUESTION — What percentage of moisture in the ventilating current would you recommend as necessary for safe operation?

ANSWER — While an air current of 100 per cent humidity would exert no drying effect in the mine and would therefore reduce the danger of a dust explosion, such a degree of humidity would be much too great for the health of the workmen. Better results are obtained when the humidity of the mine air ranges from 60 to 70 per cent.

QUESTION — What practical and everyday test would you employ to determine if the dust in a mine is in a safe condition or not?

ANSWER — The tests of the Bureau of Mines have shown that to render dust incapable of being blown into the air, it must be sufficiently wet as to be plastic when squeezed in the hand. In

must be determined by conditions in the roof and floor.

QUESTION — Explain fully what is meant by the term "humidity," as applied to coal-mining operations.

ANSWER — The word "humidity," in mining, refers to the degree of saturation of the mine air with moisture. When the air is but half saturated, its humidity is 50 per cent. The weight of moisture a given volume of air will absorb depends on the temperature of the air. For example, air that is fully saturated at 40 deg. F. will contain about the same weight of moisture as air that is only half saturated at 60 deg. F., volume for volume. The term does not, therefore, refer to the amount of moisture in the air, but to the degree of saturation.

QUESTION — How would you set timbers on a double track slope pitching 30 degrees?

ANSWER — In timbering a double track slope, it is of the greatest importance to avoid standing posts between the two tracks to support the center of the crossbars. It is of advantage also to avoid setting posts at the side of the track, if possible. Where the coal is hard a good plan is to hitch the cross-



FIG. 1. CROSSBAR HITCHED INTO RIBS

bars into the ribs on either side of the road, as indicated in Fig. 1. Heavy crossbars are used and wedged tightly by both wedges driven underneath each end of the bar.

Where this method cannot be employed, owing to the coal being soft and pliable, the legs supporting the two ends of the crossbar can generally be set back in the ribs so that they will not be knocked down by a derailed car. In setting posts on a pitch of 30 deg., a foot-hole should first be cut in the floor and the posts should lean up the pitch at a slight angle, as shown in Fig. 2. In this position, it is held secure by driving a good wedge between the roof and the top of the post. The post is then said to be "underset." When a post is underset in this way, any movement of the roof down the pitch tends to tighten the post, which would otherwise be loosened and fall out. If the bottom is hard, making it difficult to cut footholes in the rock, a good plan is to cut hitches in the rib and lay crossbars on the floor of the seam in front of the posts. These crossbars will furnish a good support for the posts and the track, which has a tendency to slip down the slope.

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\$10,000,000 Power and Atomizing Plant Is Projected in Ohio

THE Allied Power Industries, a \$10,000,000 trust estate, organized by L. W. Winchester and Robert S. Fletcher, with offices in Columbus, Ohio, has started the erection of an immense power and atomizing plant at Gnadenhutten, in Tuscarawas County, Ohio. The trust is a consolidation of the Gnaden-Goshen Coal Co., the Atomized Fuel Industries and the Ohio Gas & Power Co. L. W. Winchester and Robert S. Fletcher are the trustees of the estate, which is authorized by the Court of Chancery of Franklin County, Ohio.

The estate owns a tract of approximately 3,300 acres of coal land on the Pennsylvania R.R. near the town of Gnadenhutten. The mines have been in operation but little coal has been produced for commercial purposes in the past few years. A siding of a mile and a half is being built from the main line of the Pennsylvania and the coal plant will be the first unit to be erected. This will consist of an atomizing plant which will prepare the coal for the furnaces of the projected power plant.

Three distinct steps are taken in the preparation of the coal. First it is ground to the fineness of large shot and then dried to a point where but one-half of one per cent of moisture is present in the ground coal. This eliminates the danger of spontaneous combustion. Then the ground fuel is placed in the atomizer, where it is ground to the point where 98 per cent passes through a 200-mesh screen.

The electrical plant as planned provides for a number of units and the cost will be from \$10,000,000 to \$12,000,000. The first unit will be completed in a year and will generate approximately 15,000 kw. of current. The ultimate plans provide for a production of 70,000 kw., which will be the largest electrical plant in the country.

The trustees assert that electrical power can be transported distances up to 300 miles from the plant with a loss of only 10 per cent. All of the development will be at the mouth of the mines, which will have a capacity of approximately 1,000 tons daily.

Admixture of Wall Rock in Alaska Coal Makes Availability for Navy Uncertain

OWING to the activities of the Navy Department, coal mining in Alaska is attracting much attention at this time. While considerable development has been undertaken by the Navy Department it has not been established that Alaska can be made the source of large supplies of coal of navy grade, in the opinion of George S. Rice, chief mining engineer of the Bureau of Mines, who has recently returned from first-hand contact with the mining industry in that territory. The coal being developed at the Chicaloon mine is similar to that of the Pocahontas vein and unquestionably is of very high grade. The difficulty is that it is very badly admixed with wall rock and there is the danger that the continuity of the beds, of which there are several, will be interrupted by eruptive intrusions. Because of these conditions, extensive prospecting and development will be necessary to prove the value of these coal deposits. This prospecting is amply justified, Mr. Rice believes. The strategic importance of developing a naval coal supply on the Pacific Coast is great. Even from the standpoint of cost, there is a large leeway due to the fact that Pocahontas coal must be transported many thousand miles to Pacific bases.

The Eska mine has been developed to a point where it can furnish the requirements of the railroad and the other demands along the railroad's line. In fact, the output of the Eska mine can be trebled if the demand for the coal should develop. The quality of the coal will be improved with the completion of the government's washery. Private development of coal in the vicinity of the Eska mine also is in progress.

Several of the developments in the Behring River coal field were closed down recently. Apparently conditions are not considered propitious at this time to construct a branch of

the Copper River R.R. into that field. The coal in that region is of a semi-bituminous character. The beds are very contorted and their development depends upon the extension of the railroad.

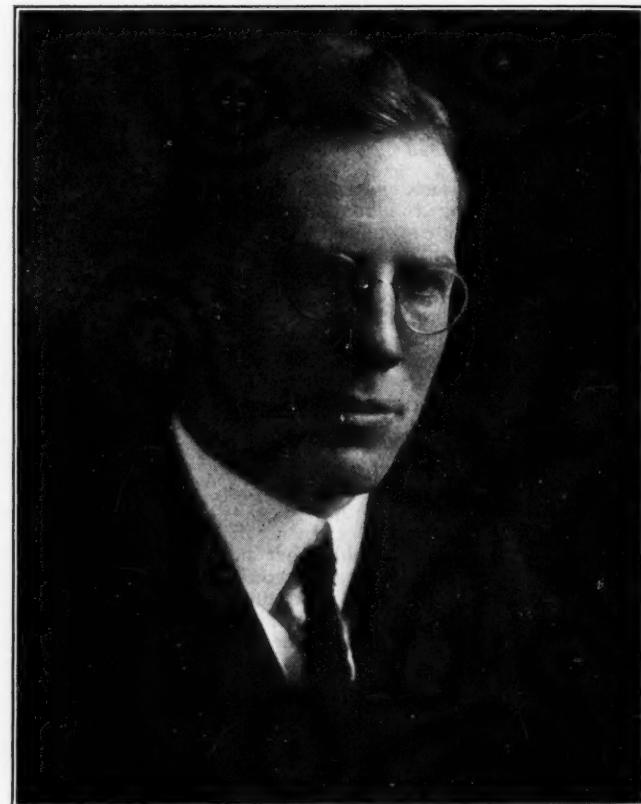
Coal Men in Central Pennsylvania Combine To Establish Safety-Service Stations

THAT central Pennsylvania will have a safety-service station located in Johnstown which will reach all points in Cambria and surrounding counties is practically assured by reason of the interest manifested by the various coal and industrial concerns, according to John C. Mattern, originator of the plan.

During the past month Mr. Mattern has circulated a petition among coal operators, merchants and other industrial heads with the result that sufficient capital has been pledged to warrant definite action in instituting the scheme. He has received bids on automobile ambulances and on first-aid equipment, such as bandages, splints, stretchers, pulmeters and lungmotors.

It has been decided to establish stations at Altoona, Cresson, Clearfield, Somerset and Hooversville. Mine operators in these places have pledged themselves to lend financial aid in organizing and equipping these stations which would act as auxiliaries to the central offices, which would be located in Johnstown. The organization will be known as the Safety-First Association. Each mine operator, manufacturer or merchant or other person becoming affiliated will contribute a pro-rata share of the initial cost of the equipment for the station. For the money thus expended the members will be protected with adequate first-aid and ambulance service during the fiscal year.

After the initial cost of the station is defrayed the materially reduced maintenance cost will be borne by the members of the association. In addition to being assured of adequate service when such service is needed, those who contract for the service will be furnished first-aid instructions for all employees for whom they may desire it. Mr. Mattern expects the stations to be established by Dec. 1.



IRA C. COCHRAN

Traffic manager American Wholesale Coal Association
The new traffic department of the association began its activities on Sept. 1.

Selling the Coal Industry to the Public*

Clarifying Conceptions and Eliminating Misconceptions of the Voter About
Coal Paramount in Averting Restrictive Legislation—Policy of Delay Has Put
Industry on Defensive and Added to Ultimate Cost of Educational Campaign

BY C. E. LESHER†

BECAUSE the people have no confidence in the coal industry should be no cause for us to despair. Coal is not alone in this respect. Throughout this country—throughout the world—there is a growing discontent with the whole fabric of our social order. Three-quarters of the populace is reaching for new isms—expressions of dissatisfaction with our social institutions. The Plumb plan, the Calder, Frelinghuysen and Kenyon bills, the packer legislation are but the manifestations of this discontent.

We are prone to think and speak of ours as a capitalistic system. It is anything but that; it is an individualistic system. The lowliest coal digger can, has, and we hope always will, have the opportunity to rise to mine owner and operator. Some of you may have started that way. We all know those who did. And we know that some have risen to be thrust back again because they were not of the timber that can carry the load that is the burden of the man at the top.

Because ours is the best and greatest social system in the world, we should assay the spirit of unrest and, where we can reach the cause, correct it, each within his province and industry. There falls on those who can keep clear heads these days the fundamental necessity of protecting the foundations of our institutions, of seeing the country through this winter, and the next few years, if need be, until sanity returns.

NO ONE WILL TAKE INITIATIVE IN DEFLATION

What has all this to do with coal and with selling the coal industry to the people? Just this: The people who burn coal are dissatisfied with the price. The country is thoroughly sold on the idea that we must get down to a steady, normal basis, and proceed as usual, but no one is willing voluntarily to take his medicine. The man whose income is from his money and the man whose income is from his labor alike are seeking some way to justify keeping their levels up while the other fellow takes the decrease. Collectively we are anxious to hurry the process of deflation; we know it must be consummated before we can resume a satisfactory rate of business. The delivered price of household anthracite is about double that of pre-war times, that of bituminous for domestic use is but little lower relatively if the coal comes from union fields, but it is much lower if it comes from non-union mines.

It is price and price only that is at the root of the public's questioning of this industry. The demand is for lower price. The consumer cares little how that price be lowered; he is demanding that it come down. In this we must appreciate that it is the ultimate consumer, the man who cannot pass on the cost of fuel—the householder, in other words—that we are considering. For him coal is an inescapable necessity and to him the cost in dollars of his winter's coal is an item of greater magnitude than for any other thing save food he buys outright.

When we say that we should sell the coal industry to the public we mean that we want to show the people that certain conceptions are misconceptions. For instance, the individual consumer with whom we are concerned, and who burns one in six of the tons of all kinds of coal produced in the country, thinks that the price of coal is controlled in the interests of the coal man. He knows the coal industry only through his contact with the retail dealer. He knows what is a fact in most cities, that there is one price no matter from whom he orders. He harks back to the old days when there was an anthracite trust, just as there were combines in many other industries, and when the railroads

were unregulated and indulged in unwarranted practices. Not only the average person but 99 per cent of the people in the country know nothing about the coal industry. The men in it know altogether too little. We all have just begun to find out the activating causes of the big movements of price and distribution—marketing, in other words. The man who buys coal for his home is just as suspicious of the coal industry as you and I are likely to be when we buy a pair of shoes at a price as high now as the highest during the war.

PUBLIC LACKS CLEAR KNOWLEDGE OF COAL INDUSTRY

The public has no conception of the difference between the hard- and soft-coal industries. We know that what we can say about one is the opposite of what can be said about the other. In the domestic sizes, hard coal is non-competitive as compared with all bituminous coal trade. Both are labor-ridden, but one more than the other, for the anthracite miners do not have the check-off. Yet the coal-consuming public in the East that uses hard coal is forming one opinion of the industry and the coal-consuming public in the West, which largely uses soft coal in its homes, is forming its opinions about coal on another set of facts.

So as a first requisite to selling the public the coal industry I should put the necessity of a realignment of our thought as to how the industry should be divided. Instead of the anthracite and the bituminous operators, whose problems of production, distribution and price are widely different, we should look at the problem as divided between the marketing of domestic coal and of industrial coal. We know that big business—the railroads, the packers, the industrials, even the public utility plants—are able in the long run to take care of themselves. They use coal as a raw material, just as they use iron, steel, copper, lumber. They are able to pass on the ultimate consumer in the price of their finished product whatever price they have to pay for coal. Unless they can, they are not successful in their enterprises.

But the householder takes coal as a finished product. Furthermore, to him it is an essential—so essential that there is a powerful sentiment favoring the idea that coal is charged with public use. Perhaps coal for the householder is charged with public use, perhaps in so far as coal is the fuel that keeps the houses of our people warm, it is a public utility. Certainly not beyond that point, any more than other basic commodities, as iron, steel, metals, lumber and oil. But the great difficulty is to separate the two kinds of coal, the raw material and the finished product, in our own minds and in the minds of the public and to get treatment and consideration for each befitting its merits.

HOW THE PUBLIC MANIFESTS DISSATISFACTION

The disturbing legislative proposals that continually bob up in Congress and in our state Legislatures do not originate with the legislators, except possibly as to form. They are manifestations of the public discontent with the price the voters have to pay for the coal that goes into their cellars. In the past year I have talked with many large industrial executives, and I have yet to find one who did not discuss coal from the standpoint of his own personal coal bill rather than from the standpoint of his business.

Therefore our problem is to get to the voter with the story of coal, the coal he puts in his cellar. Until quite recently there has been no effort to stem the tide of hostile legislation except at the final stage. You remember the harrowing details of the great Dayton flood in 1913; how a vast torrent of water inundated that fair city and caused untold loss of life and property. When the rains that caused that historic flood started to fall there was no way under

*An address delivered at the twenty-fourth annual session of the American Mining Congress, Chicago, Ill., Oct. 18, 1921.

†Editor, *Coal Age*.

heaven to prevent a catastrophe. What have the people in the Miami Valley done since then to prevent a recurrence of such a flood? They have gone back up the valley to the farthest limits and built dams; dams across dry valleys, if you will, but dams that will catch the next flood before it starts. I am not sure but that it is too late to stop a catastrophe in the coal industry, but it is surely worth while trying while the weather is fair. There is no basis of permanent peace for the coal industry in pursuing a policy of waiting for the bogey of restrictive legislation to bob up in our legislative halls and there to strangle it. The place to set the coal industry straight is back home where sentiment originates.

WHY ANTHRACITE PRODUCERS ARE ADVERTISING

There is and can be no basis of fact for the regulation and control of the coal industry in so far as the steam and industrial trade is concerned. Selling coal, both hard and soft, on this market is so highly competitive that there is nothing to be gained by such a course and much to be lost. The danger lies in the other direction. The anthracite producers have more at stake here than the bituminous men, for their business is in domestic coal. Steam coal to them is a troublesome byproduct. It is not surprising, therefore, that they have been the first to go before the individual consumer through the medium of the newspaper with their story. And they started only a few weeks ago. They have reached a point where although a natural monopoly, they are asking the public for the right to live as individuals.

This campaign of the anthracite operators is a tremendous step forward. So far it has been disappointing to me in that the story they are giving to the public falls short of satisfying because it tells but one-third of the story to the reader. Coal at the curb is what interests the voter. The anthracite operators' advertisements carry the story no further than the mine and breaker. The reaction I have noted is, briefly: "Well, I cannot see how it can cost nearly \$8 to mine a ton of coal, but even if it does, someone along the line after it leaves the mine is gouging us."

The anthracite operators evidently are proceeding on the assumption that they will tell the story of why it costs so much to mine and prepare their coal and then let the railroads tell why it costs so much to transport it and in turn the retail dealers will advise their customers that they in turn have troubles and high costs. But if the railroads and the retailers fall down on their end, there is no assurance that the voter will be satisfied and let the producers alone. So far the public is getting explanations. The industry is on the defensive.

TAKE CARE OF QUALITY AND SERVICE; IGNORE PRICE

The second step in selling the coal industry to the public, therefore, is to get on the offensive. Recognizing that the discontent is on price, the producers of all coal should go before the individual consumers in an extensive campaign not to explain the price but to make them satisfied with the price. You know that it is not price that sells coal. It is quality and service. I thought I had seen the greatest expression of confidence when recently I read a letter to a coal company directing the shipment of coal and saying that the matter of price would be left to the shipper. But yesterday a producer told me that he had customers who merely ordered coal and never even mentioned price. Confidence first, then quality and service, and price will cause no tirade in Congress.

Confidence must start and largely end with the dealer with whom the buyer comes in contact. He is your ambassador. I can see no hope of your educating the retailer in the way that he should go. There is another—surer—way, and that is to educate the people and they will force the retailer into line. Tell the public the whole story from mine to curb, set up standards of merchandising, raise the level of the coal industry, as the public sees it, from dirty back-alley quarters to the dignity of State street. Tell the people what to expect in the way of service and quality and they will demand and get it.

Forget your troubles and concern yourselves with the troubles of the public with coal. Gain confidence and then when you have difficulty the public will listen to you. You

can go into the office of the buyer of coal for big business and set him straight but you cannot reach the festering sore of public discontent that way. It will cost a million dollars a year to do what I propose, and it will reach but a small portion of the total trade in point of tonnage, but failure to do it is jeopardizing the entire industry.

Canada's January-June, 1921, Coal Output 14 Per Cent Less Than Last Year

PRODUCTION of coal in Canada during the first six months of 1921 declined to 36 per cent of the amount produced during the corresponding period of 1920 but was 5 per cent in excess of the output for the same period of 1919. With the exception of New Brunswick, none of the provinces showed an output equal to the 1920 record. New Brunswick produced 104 per cent of its 1920 output and the other provinces follow in the order named: Saskatchewan, 94 per cent; British Columbia, 91 per cent; Nova Scotia, 87 per cent; Alberta, 79 per cent.

The following table compiled by the Mining Branch of the Dominion Bureau of Statistics, shows the output, shipments and value of shipments of Canadian coal produced during the first half of this year. A part of the data included in the table has been estimated and the figures are therefore subject to revision. The total value of coal shipped during the period amounted to \$32,882,953 and the average selling price reported from the different coal-producing areas ranged from \$2.43 a ton for lignite coal in Saskatchewan to \$8.53 a ton for anthracite in Alberta. The average for the dominion was \$5.75.

PRODUCTION OF COAL IN CANADA, JANUARY TO JUNE, 1921.
(In Net Tons)

Provinces	Output	Shipments	Total Value	Average Value per Ton
Nov Scotia	2,750,319	2,257,261	\$14,536,760	\$6.44
Bituminous				
New Brunswick	69,230	65,768	377,508	5.74
Bituminous				
Saskatchewan	145,394	136,670	332,108	2.43
Lignite				
Alberta	46,402	10,357	\$88,419	\$8.53
Anthracite	1,261,080	1,172,804	5,711,555	4.87
Bituminous	1,125,312	979,021	4,405,594	4.50
Lignite				
Total for Alberta	2,432,794	2,162,182	\$10,205,568	\$4.72
British Columbia				
Bituminous	1,385,323	1,094,405	\$7,431,009	\$6.79
Total for Canada	6,783,060	5,716,285	\$32,882,953	\$5.75

Canada as a whole imported 104 per cent of the amount of anthracite coal brought in during the same period in 1920, and 132 per cent of the bituminous. Quebec was the only province which imported less anthracite during the six months than during the corresponding period of 1920, but even then imported 96 per cent of the anthracite coal received in the half-year of 1920, an increase of 12 per cent over the figures for 1919. Manitoba and the Head-of-Lakes imported 169 per cent of the 1920 quota of anthracite; Nova Scotia, 140 per cent; New Brunswick, 128 per cent; Prince Edward Island, 108 per cent and Central Ontario, 107 per cent. In every case these figures show that more anthracite was imported during the past six months than in the corresponding six months in 1919.

Bituminous coal entered at Fort William and Port Arthur and the customs port of Manitoba amounted to 235 per cent of the 1920 figures. Nova Scotia imported 224 per cent as much bituminous as during the same period of the previous year but the entire quantity was only some 1,500 tons. Quebec was more fortunate in the matter of bituminous than in the previous year and during the first six months received 179 per cent of the amount which was brought in during the first six months of 1920. Central Ontario obtained 115 per cent as compared with importations in the first half of 1920.

The output from Canadian mines plus the amount imported and less the quantities exported leaves an amount which may be called the "coal supply." This figure for the six months of 1921 was 14,233,302 tons, as compared with 13,419,021 tons in 1920 and 12,130,794 tons in 1919.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

THAT there is a real basis for the general statement of improved business already issued by the Department of Commerce is revealed by the detailed departmental survey for October, just released. This publication, the third number of "The Survey of Current Business," shows the trend of all important industrial movements at the first of October.

A careful study of the figures presented shows that, considered as a whole, business and industry have moved forward. In the majority of industries production and consumption increased and stocks declined.

Iron and steel showed a steady gain. The building industry indicated improvement. Textile consumption figures continued to advance and exports of raw cotton were substantially larger than a year ago. The unemployment problem, while still far from disposed of, showed a decided change for the better.

Loading of revenue freight on the railroads of the United States totaled 829,722 cars during the week ended Nov. 5, compared with 952,621 cars during the previous week, or a reduction of 122,899, according to reports by the American Railway Association. This was 85,893 cars less than were loaded during the corresponding week in 1920 but 2,998 cars more than were loaded during the corresponding week in 1919. While there was a reduction in the loading of all commodities compared with the week before, the principal decrease was in coal and merchandise and miscellaneous freight, which includes manufactured products. The decrease in traffic was in the main due to the observance of two church holidays during the week.

The subjoined paragraphs summarize the actual movements in each of the important industrial lines.

Building and Construction Soars

Reports on contracts awarded in the 27 northeastern states showed a gain in value of 11½ per cent over August in place of the usual seasonal decline. The total floor space showed a gain of 18.4 per cent. The September total in value is the largest monthly total this year and is the largest September total on record. The most marked feature of the month was the amount of residential construction, which was 39 per cent of the total contracts awarded, and which showed an increase of 165 per cent over last year in value, and 164 per cent over last year in square feet.

Production of Newsprint Declines

Newsprint production declined 3.4 per cent and shipments dropped 5.7 per cent in September. Stocks of newsprint gained 11.5 per cent. Paper other than newsprint gained 10.6 per cent in September and

shipments increased 12.8 per cent. Stocks declined 6.1 per cent for the month. Production, consumption and stocks of mechanical wood pulp declined in September. Chemical pulp gained 4 per cent in production and 6.5 per cent in consumption and shipments, while stocks declined 8.1 per cent.

Rubber Consumption Shrinks

Imports of crude rubber increased 4.4 per cent in September and were 23.9 per cent greater than for the same month of 1920. Consumption of crude rubber by tire manufacturers made the seasonal decline amounting to 36.5 per cent in September and tire and tube production dropped correspondingly. Domestic shipments of tires and tubes also showed a seasonal decline of from 25 to 30 per cent. Production is from 60 to 200 per cent above the average of the six months November, 1920, to April, 1921.

Textiles Show Marked Improvement

Statistics of the wool industry reflect improvement; consumption increased in September by 6.9 per cent over August, while the last report of stocks showed a decline.

Cotton consumption increased 4.1 per cent during September. The export movement both of raw cotton and cotton cloth also improved during September, with an increase of 5.9 and 10.5 per cent, respectively, over August, 1921, and of 132.3 and 14.3 per cent over September, 1920. More cotton spindles were active than in August by 2.8 per cent.

In finished cotton goods the activity again increased. Orders, billings and operations increased from 5 to 6 per cent over August, goods in storage were 7.5 per cent larger, while shipments were 13.9 per cent greater. Finishing mills operated 75 per cent of capacity in September, the highest percentage attained in any month this year.

The silk industry reflected a declining demand during September: imports declined by 10.1 per cent, consumption was 4.6 per cent less, while stocks increased by 20.7 per cent. The condition of this industry is greatly improved over last year, with increases in imports of 133.3 per cent, in consumption of 89.1 per cent and a decline in stocks of 55.7 per cent from September, 1920.

Fewer Business Failures Reported

Business failures declined in number by 6 per cent, and in extent of liabilities by 13.8 per cent, from August. New incorporations were 15.7 per cent less than in August. September, however, provided an increase of 48.5 per cent in new capital issues, the largest month since April. Dividend and interest payments in September were 50 per cent greater than both August, 1921, and September, 1920.

Metal Industries on Upturn

The iron and steel industry evidenced a slight improvement in production during September, with pig iron 2.7 per cent greater than in August and steel ingots 1.9 per cent greater. Exports and imports of iron and steel increased, by 24.2 and 35.1 per cent, respectively. An increase in unfilled steel orders marked the turn from a long decline.

Copper production turned upward, with a slight increase in August. An increased foreign demand is noted for this metal, with September exports 44.1 per cent larger than August and, with one exception, the largest monthly shipment since May, 1920.

Zinc production continued to decline, but at a descending ratio; the September decline was only 2 per cent. Stocks declined 6.1 per cent.

To Avert Economic Loss, Coal Producer Must Get \$1 Per Ton Above Labor-Material Cost

BY THOMAS T. BREWSTER*

THE proposition that essential industry is charged with public interest is acceptable if accompanied with the co-relative proposition that capital is entitled to preservation and a fair return for its use, because it is obvious that, if the natural-resources industries are not maintained in a healthy and self-perpetuating condition, the commonwealth is impaired.

A recent bulletin of the Census Department states the capital invested in the bituminous coal industry to be \$1,904,450,123, and, assuming this to be a correct basic premise, pro rated on an annual production of 500,000,000 tons, we have a capitalization of \$3.81 per annual ton.

Adhering to the proposition that capital is entitled to preservation and a fair return for its use, and with regard to the fact that dividends are subject to surtaxes, a current annual dividend rate of 8 per cent on capital invested in coal is as low as can be effective in keeping capital in the industry. And, as the corporate income will be subject to an income tax of 15 per cent, in order to derive a current distributable profit of 8 per cent the coal industry must have net earnings equivalent to 9.412 per cent per annum upon the capital invested, or \$179,246,845 of annual profit, which, pro rated on 500,000,000 tons, demonstrates an interest charge equivalent to 35.849c. per ton.

Assuming that one-third of the stated invested capital, or \$634,816,717, represents investment in reserve and undeveloped coal lands, and the balance, \$1,269,633,416, represents investment in coal, development and equipment of operating mines of an average life of, say, twenty years, and therefore must be replaced during that time, and without regard to the fact that the expense of development and equipment of such new mines will be much greater than that of those now exhausting, we are faced with the necessity of providing an annual replacement fund of, say, 5 per cent on the capital invested therein, or say \$63,481,670, which, pro rated on 500,000,000 tons, demonstrates 12.69c. as the necessary reserve to replace current depreciation and depletion. This, added to the above demonstrated interest charge, gives 48.539c. as necessary to preserve capital and pay a fair return thereon.

To the above should be added a provision for administration and selling expenses, which may be moderately stated as an average requirement of 25c. per ton, making a total of 73.87c. per ton. This is exclusive of state and local taxation, of losses from bad debts, of any reserve for abnormal catastrophe, and contains nothing to cover indemnity for killed and injured workmen. Hence, if the basic premise be correct, it is obvious that to conduct the coal industry without great ultimate economic loss, the managers of coal properties, as trustees for the capital intrusted to them and as trustees for the public good, must collect at least \$1 per ton over and above the current expenses for labor and material.

*President and general manager, Mt. Olive & Staunton Coal Co., St. Louis, Mo.

International Chamber to Meet Next Year In Rome; Will Study Fuel Economy

ANNOUNCEMENT was made Oct. 21 by the American section of the International Chamber of Commerce that the second annual meeting of the International Chamber will be held in Rome, Italy, during the week of Sept. 18, 1922. At the first annual meeting, held last June in London, more than 200 American business men, representing virtually every industry in the United States, attended. The date for the next meeting was decided upon at a meeting of the Council of the International Chamber just held in Paris. The United States was represented at the council meeting by Owen D. Young, vice-president of the General Electric Co.; E. A. Filene, president, William Filene's Sons Co., Boston, and Elliot H. Goodwin, vice-president of the U. S. Chamber of Commerce.

Great interest is being shown by American business men in the formation of committees which are to represent the United States in important matters which will come before the international body. Among the numerous subjects which are to be studied by the international committee are export credits, foreign exchange, reciprocal treatment of foreign banks, bills of exchange, economy of fuel, international bureau of statistics, international commercial arbitration, international protection of industrial prosperity, unification of tariff nomenclature, reciprocal treatment of commercial travelers, reform of the calendar, through freight trains on great international traffic routes, uniformity of ships' tonnage measurement, combined rail and ship bill of lading, uniform ocean bills of lading, uniform interpretation of meaning of trade terms, and uniform passport regulations.

British Power Station Makes Comparative Test of Oil and Coal for Fuel

TESTS of oil for fuel in comparison with coal were conducted in Yorkshire, England, during the recent coal strike, according to reports to the Department of Commerce. Oil was used to generate power at the Leeds Tramways power station at Crown Point, apparatus being specially fitted to the boilers. Much interest was aroused by the test in view of the poor quality and high prices of coal at present available for manufacturing purposes. The financial result was presented to the Tramways committee, showing that oil fuel only was used on eight boilers, seven of which are fitted with the Gretna type burner, two on each boiler, and one fitted with the Johnson type with four burners. Ten tons of oil were used and 11,300 units of electricity generated, giving a consumption of 1.98 lb. at a cost of 1.115d. per unit, against coal consumption of 2.859 lb. at 0.56d. per unit of last year's prices.

The report stated that to make a fair comparison, several deductions should be made from the works cost if oil fuel only is used. It stated that if oil fuel only were used there would be a saving of £3,876 (\$18,862 with the dollar at par) now expended for repairs and renewals, stoker gear and firebars, etc.; coal elevator repairs, wages of five firemen, three elevator men and four laborers. The saving in oil for 71,265 units would be £331 (\$1,611 at normal exchange), saving in cost of removal of ashes would be £179 (\$871) and saving in cost of boat hire £72 (\$350). These amounts and in addition seventy-one units of electricity would be saved which are now expended in operation of stoker gear and coal elevator. The comparison of power expenses calculated on the year ended Mar. 31 last showing the difference in cost of oil fuel against coal fuel are given, the cost in coal being given at £48,771 (\$237,344 with the dollar at par) and oil £80,957 (\$393,977).

Coal is figured at last year's prices and oil at \$25.55 at par per long ton. The report says the price of oil would have to be \$13.87 per ton to compete with good coal at \$8.75 or \$14.35 to compete with coal at \$9.12 per ton.

A COMPREHENSIVE REPORT on employment in the bituminous coal mining industry will be one of the outgrowths of the recent conference on unemployment, Commerce Secretary Hoover promises. He states, however, that it probably will be six months before this report can be completed. It is understood that the material for this report will be drawn from various sources. The sub-committee which drafted the bituminous coal report covering emergency unemployment has been dissolved but certain members of that committee are expected to contribute to the report on permanent methods of reducing the fluctuations in employment at coal mines.

THE GOVERNMENT PURCHASES COMMITTEE of the National Coal Association was to have met Nov. 23 with the coal section of the government's committee on co-ordination of purchases. The committee which is to co-ordinate coal purchases for the government is now making a survey of all the departments and compiling the data which it will be necessary to have at hand to buy coal in the most intelligent manner.

N.C.A. Executive Committee Meets in Cincinnati; Coal Statistics, Traffic and Freight Rates Discussed

NEARLY a hundred coal operators and mine owners were attracted to Cincinnati for the meeting of the executive committee of the National Coal Association, which was held at the Hotel Gibson on Nov. 18. The meeting, which was the first held since the summer meeting in Chicago, had been postponed because of the illness of J. G. Bradley, of Dundon, W. Va., president of the association.

The trade situation, taking in labor conditions and their relation to general stabilization, was summed up by Mr. Bradley in his opening address. In part he said:

"The first thing on the program is for me to report to the board the activities of the association since we last met in Chicago, July 15. During that time the country has made more or less progress toward stabilization. The coal business today, I think, probably reflects very accurately the progress which the country has made, and while I do not think any one of our particular coal districts is doing any better than any other district, each one is in a very good position to know how far the country has progressed on the road to recovery. It is one of the functions of an organization of this sort, representing an industry as widely distributed through the country as this and doing business originating its product in as many states as we do, to help to restore the country to normal.

"We can do much more collectively when we attempt that than we realize. Only last week Mr. Hoover pointed out what our coal industry can do toward assisting the steamship interests to get back to the position where they could really carry American commerce to the far parts of the world. I want to say that, representing this association, I found Secretary Hoover not only in accurate touch with the conditions in our industry but the conditions in other industries, and that to my mind he has a grasp of the situation as a whole which he is willing to put at our disposal of other industries and which is refreshing and encouraging and gives me optimism as I look to the future.

CONVINCING PROGRESS MADE IN HELPFULNESS

"We have made great progress, I think, in the last six months in convincing official Washington that what we are trying to do is to be really helpful. We have made great progress in the last six months in securing co-operation from other industries, and I do not suppose there is any country in the world where the individual industries are so isolated as they are here in America.

"Now, the facts of the coal industry have been pretty well disseminated among ourselves. We have made a little progress in getting the true facts of the bituminous coal industry to the people generally. There is a better understanding of it in Washington than there was, but we must put these facts to the country as a whole. We must see that our next-door neighbor understands our business, because there is a public influence upon the politician in office which is going to affect us in the end.

"All the other producing industries of this country except ours have made material progress in adjusting their labor situation. Ours has not. That adjustment must come. We know that it is coming and we are doing everything to force it. We must let the public know that that is what we are doing; that there is no collusion between us and the miners to maintain a wage which puts a burden upon every household. We must make it known that we are back of the railroads in their effort to reduce their labor costs so that they can reduce rates. Some will say that that is no business of this association, but in a time like this we would be cowardly indeed if we did not stand for a reduction of an absurd labor cost in our industry.

"The facts are there. They stare us in the face. They are known to people in the industry and out of the industry, and I say that we should go out from this meeting with the determination that the cost of producing coal must come down for the benefit of the public; the cost of transportation

must come down for the benefit of the public, and both must come down for the ultimate adjustment of business and to lay the foundation for the prosperity which is ahead of us. Now, the quicker those readjustments are made, the better. Other industries must stand with us in our time of trial. The people of the United States must be back of us, but we cannot expect them to be back of us if we do not tell them the truth."

The executive committee took cognizance of a matter that was recently dealt with editorially by *Coal Age* when Alfred M. Ogle, of Indianapolis, brought to its attention the question of the continuation of the publication of statistics gathered by the Geological Survey. Mr. Ogle declared that this was a matter in which the general and business public was vitally interested and one of the means by which it could keep informed as to the volume of coal that was being produced and its effect upon market conditions.

The resolution pointed out that funds were not available through the appropriations made by the Department of the Interior for the continuation of the publication of these reports, and as the money could be provided by the Department of Commerce the directors urged President Harding to transfer the work of the Geological Survey to the Department of Commerce so that there would be no stoppage of this valuable source of information.

IMPROVEMENTS IN COST ACCOUNTING APPROVED

T. T. Brewster, as chairman of the committee in charge of the question of cost accounting, reported on the results that were obtained through the meeting of the secretaries and members of his committee held in Cincinnati in September. He said that other than a few minor changes that had been suggested in the forms that had been submitted and which a sub-committee that had been appointed had passed upon, the movement in that direction had general approval.

Chairman Bochus, of the publicity department, reported upon the progress that has been made with the *Coal Review* and the policies that were being followed there.

T. H. Watkins, of the Pennsylvania Coal Corporation, of New York City, submitted a report of a committee of which he is the head, representing the raw materials interests of the country, which met with Secretary Hoover of the Department of Commerce. Mr. Watkins related the difficulties attending the present-day export situation and outlined the suggestions made by the Secretary as a means to help the export business and restore the equilibrium of trade. Secretary Hoover, he said, pointed out the assistance these producers could give in co-operation with ship owners, who were bending every effort toward removing the obstacles to American trade abroad.

J. D. A. Morrow went into the problems of production which have to be faced, while counsel for the association took up the matter of publication of values of coal and, citing authorities, again declared that he could see no reason why this should be illegal.

On Thursday evening a number of traffic men and others met with John Callahan, the traffic expert of the association, and went over the transportation problems that have to be faced. Much interest was evinced in what Mr. Callahan had to say in regard to the possibility of reductions in freight rates.

HUDSON COAL CO. CONSIDERS PURCHASE OF COAL UNDER WILKES-BARRE RIVER COMMON.—C. Dorrance, vice-president and general manager of the Hudson Coal Co., has expressed a desire to look over the proposition of the City of Wilkes-Barre as to the coal under its River Common, the price offered for which by the Lehigh Valley Coal Co. and the Glen Alden Coal Co. being regarded by the city councilmen as ridiculous, was commented on editorially by *Coal Age* recently. A tender similar to that offered the Lehigh and Glen Alden companies will be made to the Hudson company.

Howat, Kansas' Mine-Worker Ex-President, Expelled from Union

IN EXTENSION of the open fight between the insurgent unions in Kansas and Illinois and the United Mine Workers of America, Alexander Howat, for twenty years a figure in the labor controversies of Kansas and president till reduced from that post by the International Executive Committee, was expelled Nov. 17 from the organization. Included in the order of expulsion were all those who have recently been suspended from office.

Howat and August Dorchy, the latter the deposed vice president, are in jail in Columbus, Kan., under sentence for having refused to end strikes in an industry essential to the public on demand of the Industrial Relations Commission of the state. Van A. Bittner, formerly president of District No. 5, Pittsburgh, Pa., has been appointed special representative in Kansas of the International Union. He had declared it his intention to suspend 4,000 mine workers who refused to return to work. The insurgent organization in Kansas now has as its head John Fleming, who has declared that no threats of expulsion will move any of his men to go back to work.

Meanwhile the Illinois mine workers, careless of threatening expulsion, have sent \$60,000 worth of provisions into the district, according to William Orr, traveling auditor of the Central States Wholesale Co-operative Association, which has been furnishing supplies and extending credit to the strikers. John H. Walker, president of the Illinois State Federation of Labor, will address the strikers soon to hearten them in their determination to continue to defy the law and the union.

Martial Law in Huerfano County, Colorado

PURSUANT on a reduction of wage at the mines of the company, where the majority of the votes taken had been favorable to a wage decrease, the Colorado Fuel & Iron Co. with the approval of the State Industrial Commission on Nov. 16 declared a reduction of wage of 30 per cent to take effect Nov. 17 at thirteen of its twenty-six mines in Colorado.

Henry Capps, sheriff of Huerfano County, wrote Governor Shoup saying that the situation appeared too dangerous to be left in the hands of the county authorities and recommended the state to assume control. "Threats have been made freely," he wrote, "that company property would be destroyed and that any miner who would attempt to work under the new wage scale would be killed, his home burned and his family subjected to all manner of indignities. It is my conviction that many of these threats will be carried out unless a force far larger than I can command is placed in this county."

In consequence of this communication Governor Shoup decided to do what has almost never been done before in the United States when industrial trouble threatened. He declared martial law in Huerfano County and backed his action by sending in the State Rangers and such units of the National Guard as he deemed necessary. Much of the trouble hitherto arising has come from letting the mischief be done and then sending in the militia to guard the burned buildings, superintend the burial of the killed and maintain the status quo which the violence has created. This is the explanation of the violence which is so common and so deplorable in the sparsely-settled and poorly-policed areas of the country.

Adjutant General Hamrock will take charge of the enforcement of law and order and he has already ruled that he will have no tent colonies such as made so much trouble at Ludlow. This particular colony President McLennan of district No. 15 proposed to re-establish.

The company declares that in Las Animas County 50 per cent of the men are working, and in Huerfano only about 25 per cent. The union says the strike is general. When efforts were made to prevent the sale of arms and ammunition it was found that at Walsenburg the entire stocks of arms had been sold out.

Letters threatening the death of Superintendent E. H. McClary, of the Oakdale Coal Co.'s mine at Oakview, were turned over to the State Rangers, and a detachment under

Sergeant Christensen was accordingly sent to guard the mine and the superintendent's house. Adjutant General Hamrock asserts that he can prove that at a miners' meeting Nov. 15 eight men volunteered to kill the Amiti brothers, whose cabin had been bombarded the night before. A letter to McClary read "Get out of the camp tonight or you'll get killed."

C. M. Roehrig Resumes Engineering Work

CLIFFORD M. ROEHRIG has decided to return to his former occupation of consulting and mining engineer, with main offices located in Huntington, W. Va. He will engage in general engineering work pertinent to the coal-mining industry, personally specializing on report and appraisal work.

Mr. Roehrig first entered into engineering work with the Consolidation Coal Co., being later associated with the Davis Coal & Coke Co., Madeira Hill anthracite interests and in 1912 joined the consulting forces of Cunningham & Conner in Huntington. In December, 1917, he was offered and accepted the newly created position of secretary of the Northeast Kentucky Coal Association, remaining in this special work until June, 1920. In the summer of 1920 he became connected with the Tuttle Corporation, an export company of New York City, in the capacity of manager of production.

C. R.R. of N. J. Sells Lehigh & Wilkes-Barre Coal Stock; Consideration, \$32,500,000

AFTER a meeting of the directors of the Central Railroad of New Jersey, Thursday, Nov. 17, it was announced that the company had sold its 169,788 shares of Lehigh & Wilkes-Barre coal stock to a syndicate composed of the Burns Brothers interests, minority stockholders of the coal company and some independent coal interests.

The total consideration to be received by the seller is, in round figures, \$32,500,000, according to the statement of the company. The dates of payment of the instalments are Dec. 6, 1921; July 1, Aug. 1, Sept. 1 and Oct. 1, 1922. The first payment to be received by the selling company will be about \$10,000,000.

On April 26, 1920, the U. S. Supreme Court sustained the government's contention that the Reading Company controlled railroads and coal companies in violation of anti-trust laws, and ordered the dissolution of the combine, which included the Lehigh & Wilkes-Barre Coal Co. A committee composed of Robert W. de Forest, Edward T. Stotesbury and Daniel Willard was appointed on Sept. 29, 1921, to dispose of the Jersey Central's coal stock before Dec. 11.

Will Pay Million Dollars to Enemy Aliens

MORE than \$1,000,000 in claims for workmen's compensation, held up by the Alien Property Custodian during the world war, is awaiting claimants and will be paid as soon as President Harding proclaims peace.

Clifford B. Connelley, Commissioner of Labor and Industry of Pennsylvania, has announced that there are 628 cases for which petitions have been filed with the Federal Government and affecting \$1,200,000 of Pennsylvania compensation. The cases are those of enemy aliens who left this country at the outbreak of the war or who, having worked or lived here prior to that time, were in enemy countries during the war. Much of the money will go to families of men injured or killed in Pennsylvania, and numerous cases are those of former miners.

Coal-Tax Decision Not Expected This Year

THE test case attacking the constitutionality of the Pennsylvania anthracite coal tax probably will reach argument before the State Supreme Court in Philadelphia in January.

The case will be argued in the Dauphin County Court, Harrisburg, on Nov. 25, and it is expected that a decision will be rendered during December, when an appeal will be carried at once to the appellate court with the request that the case be placed near the head of the argument list.

Railways Make 10 Per Cent Cut in Freight Rates on Agricultural Products; Reductions Sought on Coal

AN IMMEDIATE 10-per cent cut in the freight rates on all agricultural products was announced Nov. 16 following a meeting of the Association of Railway Executives in New York City. The reduction will mean a saving of \$55,000,000 annually to shippers. The executives will not wait for any relief in the form of wage reductions, and through a special arrangement with the Interstate Commerce Commission the usual thirty-day requirement for new rate schedules will be waived, making the lower rates effective inside of ten days.

This is the first nation-wide freight rate reduction since the period of Federal control. The reduction is to hold for six months, by which time it is expected the U. S. Railway Labor Board will have adjudicated the wage cut cases so that additional rate reductions may be made.

The lower rates will be effective throughout the country except in the New England district, where an exception was made because of the weakness of many of the carriers.

This, in substance, is the proposal made by the railway executives to the Interstate Commerce Commission Nov. 12 after an all-day conference called by the commission to determine on methods by which freight rates could be reduced. It is an earnest of good faith of the roads' intention to pass to the public any saving they might obtain through wage reductions, according to several executives, and in no way affected their demand for such reductions.

Formal notices have already been posted by the railroads in the Eastern and Western districts calling for conferences to consider a cut in wages, and the lines in the Southeastern and Southwestern territories are expected to make their announcements within a week. The fifty-two Eastern roads made their declaration on Nov. 15. More than 1,650,000 railroad workers in the country will be affected by the wage cuts.

The Interstate Commerce Commission apparently received with favor the program for a 10 per cent reduction in freight

rates on agricultural products. The reductions probably will be made effective not later than the middle of December.

The Transcontinental Freight Bureau at Chicago on Saturday, Nov. 19, announced rate reductions on lumber, shingles and lumber products from Pacific Coast points to the East and New England. The Interstate Commerce Commission has been asked to authorize publication of the new tariffs.

Renewed efforts are being made by representatives of the coal-mining industry and of the iron ore producers to obtain a reduction in freight rates on those commodities. Since the railroad executives have announced their intention to apply for permission to reduce by 10 per cent all rates on agricultural products there has been a noticeable falling off in orders placed for coal. A telegraphic survey of the situation made by George H. Cushing, managing director of the American Wholesale Coal Association, leads him to believe that consumers generally will withhold orders as long as possible in the hope that further shipments may come under the reduced rates which they expect to see put into effect in the near future.

In that connection, however, it is pointed out at the Department of Commerce that it is likely to be some time before the railroad officials complete the collection of information they are now gathering of the coal-rate situation. For that reason it may be some weeks before the railroads are in a position to act, and even then considerable time must be lost in the formalities of obtaining the permission of the Interstate Commerce Commission. The statutory requirement is thirty days before the new rates may be put into effect, although the commission has the power to act specially and put them into effect on less than the statutory notice. For these reasons it is pointed out that it is unlikely that reduced rates on coal can be made effective before the middle of January, with the probabilities pointing to even a later date.

Wilkes-Barre Coal Strikers Resume Work

EMployees of the Pennsylvania Coal Co. and the Hillside Coal & Iron Co. in the Pittston District, who went on strike Monday, Nov. 14, voted to return to work Nov. 21. The action was taken after the pump runners, engineers and firemen had refused to join the walkout. Approximately 12,000 men and boys were affected.

The strike was caused by the refusal of a mine superintendent to promote a blacksmith's helper and by alleged violations of the contract miners' agreement. The operators refused to consider the grievances until the men returned to work.

Idle Freight Cars Gain; First Since April

FREIGHT cars idle because of business conditions totaled 277,669 on Nov. 8, compared with 264,700 on Nov. 1, or an increase of 12,969 cars, according to reports by the American Railway Association. The increase in the number of such cars was the first to be reported since the week of April 7 last, when the peak was reached and at which time there were 618,007. Of the total number of cars idle because of business conditions, 93,172 were surplus or serviceable freight cars immediately available for use if business conditions warranted, while the remaining 184,497 were freight cars in need of repairs.

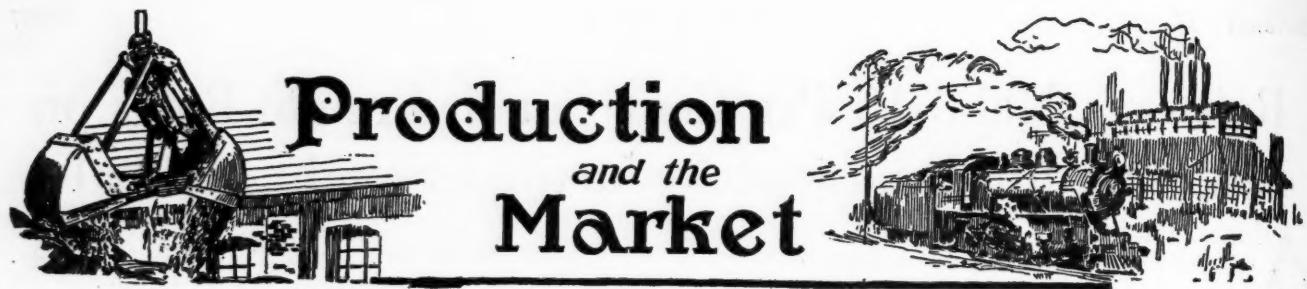
Federal Trade Commission Files Complaint Against Bernice Coal Co.

THE Bernice Coal Co., of Chicago, Ill., is named respondent in a formal complaint issued by the Federal Trade Commission. The respondent is charged with passing off goods by adopting the name "Bernice Coal Co." as a trade

name, thereby leading purchasers falsely to believe that the respondents sell genuine "Bernice coal," which latter name has been descriptive of a certain coal produced in Pope County, Ark., for so long a time that it has become associated in the minds of consumers and producers with the high-grade coal produced in that county and with no other coal.

Simon Levy, who carried on the business of the Bernice Coal Co., has admitted that confusion has arisen over his adoption of the name Bernice Coal Co., and asserts that he has ceased to sell his coal under the name of Bernice coal. Thirty days are given respondent in which to answer charges in the complaint, after which the case will be tried on its merits.

DURING THE DEBATE in the House of Representatives in which that body agreed to the Senate amendment to the tax revision bill fixing the maximum surtax rate at 50 per cent, Representative Parker, of New Jersey, favored a lower rate, saying men of wealth could earn more by putting their money in undeveloped coal mines. Representative Browne, of Wisconsin, favored the higher rate, charging that coal companies and others "have always made excessive profits." He quoted Senator Kenyon, of Iowa, as saying that one coal company last year paid excess profits taxes of \$1,000,000. He referred to the Treasury Department report of 1917, which he said showed that some coal companies were making excess profits and that profits as high as 100 per cent were not uncommon on capital stock. He said the Treasury report showed that of 404 coal companies reported upon, 185 earned profits for their capital stock of 100 to 7,856 per cent for 1917. "In other words," said Mr. Browne, "nearly half of the coal companies paid profits equal to their entire capital stock and one of the mines paid profits equal to 78 times its capitalization."



Production and the Market

Weekly Review

BUYERS and shippers are catching their breath as an aftermath of too much artificial stimulation of demand. During the last thirty days buying increased out of all proportion to requirements when the rail and miners' strikes loomed. As a consequence, reserves are topheavy and much unsold coal "on track" has gone at distress prices to avoid demurrage—November's coal was sold in October.

In some regions, especially smokeless, operators have curtailed their running time, preferring to remain idle rather than to dig coal that must be placed on the bargain counter to be moved. More contracts are being revised downward in an attempt to put prices more nearly in line with current quotations, and at the same time keep as much coal as possible out of the spot market. *Coal Age* index of spot bituminous coal prices stands at 88 on Nov. 21, a decline from 91 on Nov. 14, and the most notable break since the end of June.

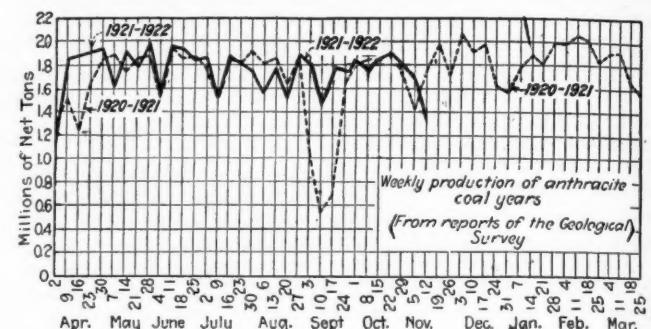
BUYERS INTERESTED ONLY IN ATTRACTIVE PRICES

Buyers everywhere, aware of the flattened markets, refuse to listen to sales talk unless the price is extremely attractive. Stocks of domestic bituminous coal in the Midwest are so heavy and solicitors have so actively combed the territory for orders that many dealers refuse them entrance and have posted signs on their doors to that effect.

The action of the railroads in reducing rates on agricultural products has been hailed as a good omen by coal buyers and sellers alike and one which many are led to believe presages a reduction of coal rates. The commission has been petitioned to reduce freights on coal, and uncertainty as to what action will be taken is disconcerting to the trade. Sober counsel prevails among the operators, who realize the plight of the roads and anticipate no general rate decrease until wages again come down.

Warm weather also is slowing up the anthracite retail

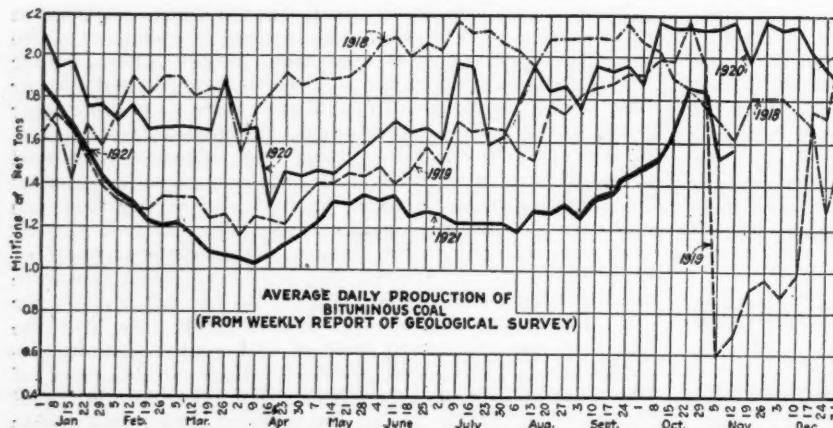
trade, to the detriment of the premiums that independent operators have been receiving. Considerable distribution is now certain to be spread over the winter, as buying by the householder has lagged all season, due to the financial stringency which made small-lot purchasing popular. Steam sizes are again hard to move and much of this coal is going to storage.



Furnace demand fails to sustain the recently increased rate of production of beehive coke. The immediate future is less promising. With the addition of 630 ovens to the active list the Frick company now has 2,000 ovens in commission. There is no market activity and prices have softened.

BITUMINOUS

Production of bituminous coal in the second week of November was 8,466,000 tons, a decrease of more than 800,000 from the previous week and 2,500,000 from the last week of October. Election on Nov. 8 and Armistice, Nov. 11, account for the magnitude of the drop, the Geological Survey estimating that the 9,600 cars of coal loaded on Nov. 11 represented but one-third of a working day. Information available the early part of the present week indicates that in the week of Nov. 19 production took a further slump, for which holidays and strikes are not accountable. The market is full of coal but buying seems to have largely ceased until possibly after the Thanksgiving holiday.



Estimates of Production

(Net Tons)

BITUMINOUS COAL

Week Ended:	1921	1920
Oct. 29 (b)	10,956,000	12,407,000
Nov. 5 (b)	9,315,000	11,429,000
Nov. 12 (a)	8,466,000	12,132,000
Daily average.....	1,590,000	2,178,000
Calendar year.....	355,990,000	472,349,000
Daily average calendar year.....	1,336,000	1,763,000

ANTHRACITE

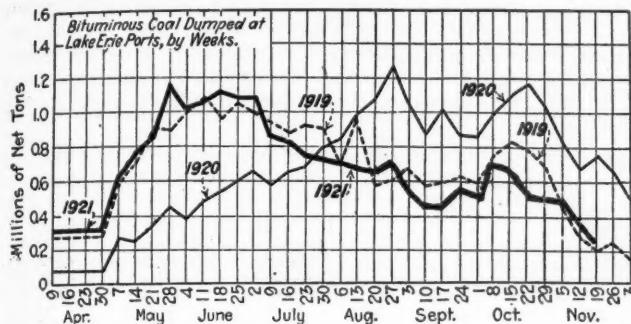
Oct. 29	1,780,000	1,743,000
Nov. 5	1,716,000	1,429,000
Nov. 12 (a)	1,373,000	1,770,000
Calendar year (b)	77,203,000	76,123,200

COKE

Nov. 5 (a)	116,000	385,000
Nov. 12 (b)	103,000	389,000
Calendar year.....	4,715,000	18,462,000

(a) Subject to revision. (b) Revised from last report.

Following a 30 per cent cut in wages, nine of eighteen mines of the Colorado Fuel & Iron Co. were shut down last week. The reduction restored the 1919 scale and 2,000 men are out in the district affected, with 600 others involved in a sympathetic strike.

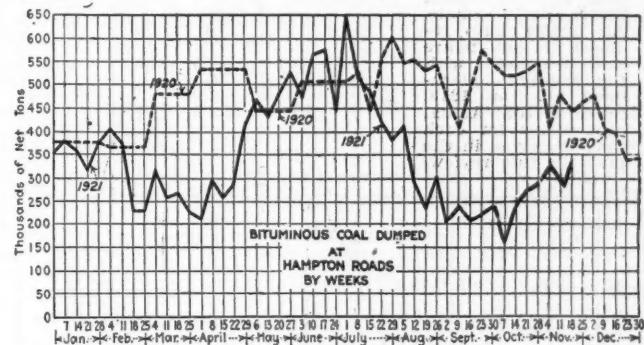


The all-rail movement of coal to New England declined in the week of Nov. 12; being 3,032 cars of anthracite, a decrease of about 300 from the previous week, and 3,459 cars of bituminous, a decrease of 100 cars. Anthracite was 50 per cent more than a year ago and bituminous about 75 per cent of last year.

The Lake movement is nearly completed. With the docks well stocked there will be more than the usual number

of winter cargoes tied up. Lake dumpings were 264,530 net tons during the week ended Nov. 21—253,685 cargo and 10,845 vessel fuel—as compared with 711,844 tons in the corresponding week in 1920. Movement for the season to date is 22,616,536 tons, as compared with 22,452,818 in 1920.

Hampton Roads dumpings in the week ended Nov. 17 were 290,433 gross tons, an increase of nearly 40,000 tons over the previous week. This variation is not unusual and is not due to market causes.



ANTHRACITE

Production of hard coal was affected by local elections and the observance of Armistice Day. The output was

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern	Market	Oct. 24, 1921	Nov. 7, 1921	Nov. 14, 1921	Nov. 21, 1921†	Market	Oct. 24, 1921	Nov. 7, 1921	Nov. 14, 1921	Nov. 21, 1921†	
Pocahontas lump.....	Columbus.....	\$4.70	\$4.85	\$4.75	\$4.25@ \$4.50	Pitts. No. 8 mine run.....	Cleveland.....	\$2.20	\$2.15	\$2.10	\$2.00@ \$2.05
Pocahontas mine run.....	Columbus.....	2.65	2.55	2.55	2.25@ 2.50	Pitts. No. 8 screenings.....	Cleveland.....	1.70	1.60	1.35	1.30@ 1.35
Pocahontas screenings.....	Columbus.....	1.60	1.75	1.60	1.50@ 1.85						
Pocahontas lump.....	Chicago.....	4.75	4.75	4.75	4.25@ 4.50						
Pocahontas mine run.....	Chicago.....	3.15	3.15	2.85	2.25@ 3.00						
*Smokeless mine run.....	Boston.....	4.90	4.80	4.80	4.75@ 4.90						
Clearfield mine run.....	Boston.....	1.95	1.95	1.95	1.60@ 2.00						
Cambria mine run.....	Boston.....	2.45	2.45	2.45	2.10@ 2.60						
Somerset mine run.....	Boston.....	1.98	1.90	1.90	1.50@ 2.00						
Pool 1 (Navy Standard).....	New York.....	3.40	3.20	3.05	2.90@ 3.25						
Pool 1 (Navy Standard).....	Philadelphia.....	3.15	3.15	3.15	3.00@ 3.30						
Pool 1 (Navy Standard).....	Baltimore.....	2.90	2.65	2.70	2.60@ 2.75						
Pool 9 (Super. Low Vol.).....	New York.....	2.60	2.50	2.40	2.25@ 2.50						
Pool 9 (Super. Low Vol.).....	Philadelphia.....	2.45	2.45	2.45	2.25@ 2.45						
Pool 9 (Super. Low Vol.).....	Baltimore.....	2.45	2.35	2.40	2.35@ 2.45						
Pool 10 (H. Gr. Low Vol.).....	New York.....	2.30	2.15	2.15	2.00@ 2.25						
Pool 10 (H. Gr. Low Vol.).....	Philadelphia.....	2.15	2.15	2.15	2.00@ 2.25						
Pool 10 (H. Gr. Low Vol.).....	Baltimore.....	2.20	2.10	2.10	2.10						
Pool 11 (Low Vol.).....	New York.....	1.85	1.85	1.90	1.80@ 1.95						
Pool 11 (Low Vol.).....	Philadelphia.....	1.85	1.85	1.85	1.75@ 2.00						
Pool 11 (Low Vol.).....	Baltimore.....	2.00	1.85	2.00	2.00						
High-Volatile, Eastern											
Pool 54-64 (Gas and St.).....	New York.....	1.80	1.65	1.70	1.60@ 1.75						
Pool 54-64 (Gas and St.).....	Philadelphia.....	1.75	1.70	1.70	1.65@ 1.80						
Pool 54-64 (Gas and St.).....	Baltimore.....	1.70	1.65	1.65	1.50@ 1.70						
Pittsburgh sc'd. gas.....	Pittsburgh.....	2.65	2.65	2.65	2.60@ 2.70						
Pittsburgh mine run (St.).....	Pittsburgh.....	2.15	2.15	2.15	2.10@ 2.20						
Pittsburgh slack (Gas).....	Pittsburgh.....	1.65	1.65	1.55	1.30@ 1.50						
Kanawha lump.....	Columbus.....	3.50	3.25	3.30	3.00@ 3.50						
Kanawha mine run.....	Columbus.....	2.15	2.05	2.00	1.75@ 2.00						
Kanawha screenings.....	Columbus.....	1.15	1.10	1.15	0.90@ 1.15						
Hocking lump.....	Columbus.....	3.30	3.25	3.25	3.00@ 3.30						
Hocking mine run.....	Columbus.....	2.10	2.10	2.10	1.90@ 2.10						
Hocking screenings.....	Columbus.....	1.10	1.10	1.10	0.90@ 1.05						
Pitts. No. 8 lump.....	Cleveland.....	3.25	3.25	3.25	3.00@ 3.25						
Midwest											
Franklin, Ill. lump.....	Chicago.....	3.95	3.65	3.65	3.50@ 4.05						
Franklin, Ill. mine run.....	Chicago.....	3.00	2.90	3.15	2.50@ 3.25						
Franklin, Ill. screenings.....	Chicago.....	1.90	1.60	1.50	1.15@ 2.00						
Central, Ill. lump.....	Chicago.....	2.50	3.50	3.50	3.00@ 3.75						
Central, Ill. mine run.....	Chicago.....	2.25	2.50	2.65	2.00@ 3.90						
Central, Ill. screenings.....	Chicago.....	1.75	1.85	1.60	1.00@ 1.75						
Ind. 4th Vein lump.....	Chicago.....	2.95	3.55	3.55	3.00@ 4.00						
Ind. 4th Vein mine run.....	Chicago.....	2.55	2.90	2.80	2.60@ 2.90						
Ind. 4th Vein screenings.....	Chicago.....	1.85	1.75	1.95	1.50@ 2.00						
Ind. 5th Vein lump.....	Chicago.....	2.70	2.70	3.05	2.60@ 3.00						
Ind. 5th Vein mine run.....	Chicago.....	2.50	2.45	2.45	2.25@ 2.60						
Ind. 5th Vein screenings.....	Chicago.....	1.70	1.75	1.90	1.25@ 1.75						
Standard lump.....	St. Louis.....	3.65	3.35	3.10	3.00@ 3.25						
Standard mine run.....	St. Louis.....	2.00	1.95	2.05	1.90@ 2.00						
Standard screenings.....	St. Louis.....	0.90	0.75	0.90	0.85@ 1.00						
West. Ky. lump.....	Louisville.....	2.90	3.25	3.00	2.75@ 3.25						
West. Ky. mine run.....	Louisville.....	2.40	2.20	2.00	1.75@ 2.00						
West. Ky. screenings.....	Louisville.....	1.25	0.85	0.95	0.60@ 1.40						
South and Southwest											
Big Sean lump.....	Birmingham.....	3.75	3.75	3.75	3.25@ 4.25						
Big Sean mine run.....	Birmingham.....	2.15	2.15	2.15	1.75@ 2.25						
Big Sean (washed).....	Birmingham.....	2.30	2.30	2.30	2.15@ 2.40						
S. E. Ky. lump.....	Louisville.....	3.90	3.75	3.90	3.50@ 3.75						
S. E. Ky. mine run.....	Louisville.....	2.20	2.30	2.10	2.15@ 2.25						
S. E. Ky. screenings.....	Louisville.....	1.35	1.30	1.45	1.10@ 1.25						
Kansas lump.....	Kansas City.....	5.50	5.50	5.50	5.00						
Kansas mine run.....	Kansas City.....	4.25	4.25	4.25	4.25						
Kansas screenings.....	Kansas City.....	2.50	2.50	2.50	2.50						

*Gross tons, f.o.b. vessel, Hampton Roads.

†Advance over previous week shown in heavy type, declines in italics.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F. O. B. Mines

Market	Freight Rates	Nov. 7, 1921	Nov. 14, 1921	Nov. 21, 1921†
Quoted	Independent	Company	Independent	Company
Broken.....	\$2.61	\$7.60@ \$7.75	\$7.60@ \$7.20	\$7.60@ \$8.20
Broken.....	2.66	\$7.60@ \$8.20	7.75@ 7.85	7.75@ 7.85
Broken.....	5.63	13.40*	12.80*	
Egg.....	2.61	8.00@ 8.25	7.60@ 7.75	8.00@ 8.25
Egg.....	2.66	8.10@ 8.35	7.75@ 7.85	8.10@ 8.35
Egg.....	5.63	13.40*	12.80*	8.00**
Stove.....	2.61	8.50@ 9.00	7.90@ 8.10	8.75@ 9.25
Stove.....	2.66	8.50@ 8.75	8.00@ 8.35	8.75@ 9.00
Stove.....	5.63	13.40*	12.90*	8.50**
Chestnut.....	2.61	8.50@ 9.00	7.90@ 8.10	8.75@ 9.25
Chestnut.....	2.66	8.25@ 8.75	8.05@ 8.25	8.50@ 9.00
Chestnut.....	5.63	13.40*	12.80*	8.25**
Pea.....	2.47	5.75@ 6.00	6.05@ 6.45	5.50@ 5.75
Pea.....	2.38	5.00@ 5.50	6.15@ 6.25	5.00@ 5.50
Pea.....	5.63	12.40*	11.15*	6.60**
Buckwheat No. 1.....	2.47	2.75@ 3.25	3.50	2.50@ 3.00
Buckwheat No. 1.....	2.38	3.25@ 3.50	3.50	2.75@ 3.25
Rice.....	2.47	2.15@ 2.40	2.50	2.00@ 2.40
Rice.....	2.38	1.75@ 2.25	2.50	1.75@ 2.25
Barley.....	2.47	1.25@ 1.50	1.50	1.25@ 1.50
Barley.....	2.38	1.10@ 1.25	1.50	1.10@ 1.25
Birdseye.....	2.47	.....	2.50	.....

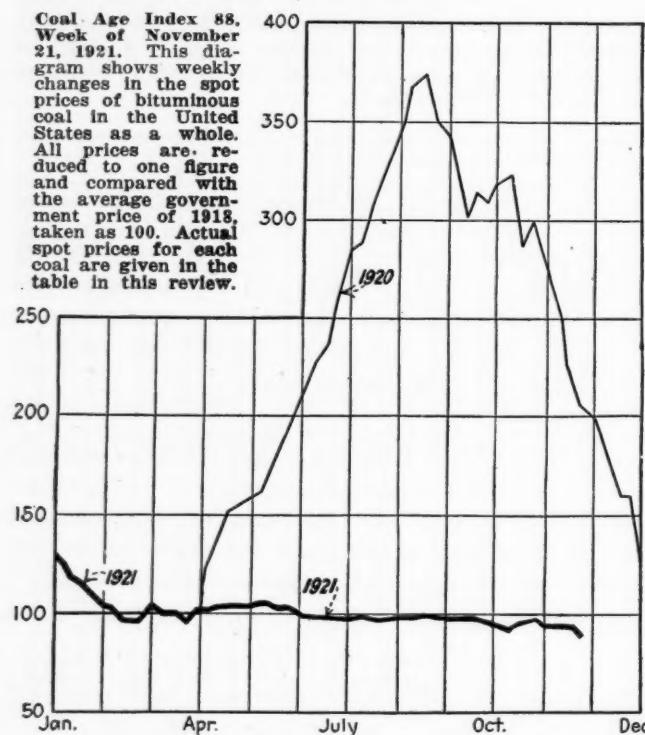
*Prices and freight rates, net tons; quotations f.o.b. cars, Chicago.

†Advances over previous week shown in heavy type, declines in italics.

**Net tons, f. o. b. mines.

1,373,000 net tons, as against 1,942,000 tons in the latest full-time week. The decrease did not exceed what might have been expected from experience and does not suggest a slackening demand.

Coal Age Index 88, Week of November 21, 1921. This diagram shows weekly changes in the spot prices of bituminous coal in the United States as a whole. All prices are reduced to one figure and compared with the average government price of 1918, taken as 100. Actual spot prices for each coal are given in the table in this review.



Cumulative production to Nov. 1 is 74,400,000 net tons. This is 1,200,000 tons ahead of 1920 and well in excess of 1919, but is about one and one-half million tons behind 1913 and 1914. October production was 7,580,000 tons, an increase over September of 456,000 tons.

Foreign Market And Export News

South American Tonnage Increases; Hampton Roads Feels Coastwise Slump; Prices Unchanged.

Export business was somewhat improved last week with thirteen foreign cargoes cleared and a number of other vessels awaiting cargo. Much of this is being sold on the spot market, with some little business still under contract. Only one cargo cleared for Europe, South American ports being the active markets for shippers.

The coastwise business was somewhat duller than usual, with a number of barges and schooners waiting here on the spot to take loads at somewhat lower rates than have obtained during the last few weeks. The generally quoted rate to New England is \$1, with some charters being made a little under that figure.

Pools 1 and 2 are monopolizing the business, very little demand being found for the lower grades of coal. Prices remain approximately the same, with some reductions being made on specific cargoes in the case of coal that is on demurrage, or threatened with the expiration of its free time at port.

The Newport News piers of the Chesapeake & Ohio have shown a re-

markable decrease in dumpings, doing about one-third the business of the Virginian piers, and less than one-third of the Norfolk & Western dumpings.

The tone of the market is still very dull. The outlook for foreign business is somewhat brighter than at any other time within the last two months, and hope is held out for a certain stimulus in this trade as winter progresses. Exporters are watching closely developments in the British mining industry. The feeling is beginning to prevail that the labor unrest there may again cause trouble and give American shippers a chance to regain markets which have been lost to the British.

United States Coal and Coke Exports and Imports During October

While exports of bituminous coal, in October, increased slightly over those of September, the volume moving to other countries is considerably less than one-third of the figure for October, 1920. Details, which are those of the Department of Commerce, covering exports and imports of coal and coke, in October, 1921, and the revised figures for October, 1920, are as follows:

COKE

Beehive coke production decreased slightly during the week ended Nov. 12, when 103,000 net tons were produced, according to the Geological Survey. During the preceding week the output was 116,000 tons. While the Frick company is increasing its production in the Connellsburg region more independents are putting out their ovens as the demand grows weaker. Prices have softened and now stand at \$3@\$3.15 for furnace and \$4@\$4.50 for foundry. Both byproduct and beehive coke production increased during October.

MONTHLY OUTPUT OF BYPRODUCT AND BEEHIVE COKE IN THE UNITED STATES (Net Tons)

	Byproduct Coke	Beehive Coke	Total
1917 Monthly average.....	1,870,000	2,764,000	4,634,000
1918 Monthly average.....	2,166,000	2,540,000	4,706,000
1919 Monthly average.....	2,095,000	1,587,000	3,682,000
1920 Monthly average.....	2,565,000	1,748,000	4,313,000
July, 1921.....	1,285,000	181,000	1,466,000
August, 1921.....	1,402,000	248,000	1,650,000
September, 1921.....	1,423,000	289,000	1,712,000
October, 1921.....	1,734,000	416,000	2,150,000

(a) Excludes screenings and breeze.

Coal consumption by the coke industry has slumped sharply. The October total was only 49 per cent of the average monthly consumption of coal for coke manufacture in 1920, representing a reduction of 3,000,000 tons per month.

ESTIMATED MONTHLY CONSUMPTION OF COAL FOR MANUFACTURE OF COKE (Net Tons)

	Consumed in Byproduct Ovens	Consumed in Beehive Ovens	Total Coal Consumed
1917 monthly average.....	2,625,000	4,354,000	6,979,000
1918 monthly average.....	3,072,000	4,014,000	7,086,000
1919 monthly average.....	2,988,000	2,478,000	5,466,000
1920 Monthly average.....	3,685,000	2,758,000 (1)	6,443,000
July, 1921.....	1,846,000 (a)	286,000 (a)	2,132,000
August, 1921.....	2,015,000 (a)	391,000 (a)	2,406,000
September, 1921.....	2,044,000 (a)	456,000 (a)	2,500,000
October, 1921.....	2,491,000 (a)	656,000 (a)	3,147,000

(a) Assuming a yield in merchantable coke of 69.6 per cent of the coal charged in byproduct ovens, and 63.4 per cent in beehive ovens.

	Oct., 1920	Oct., 1921
Anthracite.....	444,391	307,873
Bituminous.....	4,580,169	1,328,513
Exported to:		
France.....	852,190	480
Italy.....	119,106	33,012
Netherlands.....	221,514	.....
Sweden.....	123,694	.....
Switzerland.....	189,635	.....
Canada.....	1,994,832	1,122,927
Panama.....	10,741	19,229
Mexico.....	20,557	10,377
British West Indies.....	17,109	10,201
Cuba.....	115,380	43,328
Other West Indies.....	12,954	7,827
Argentina.....	268,053	23,936
Brazil.....	98,240	15,892
Chile.....	44,998	1,017
Uruguay.....	33,187	.....
Egypt.....		12,385
Other countries.....	457,979	27,902
Coke.....	103,353	22,256

	IMPORTS
Anthracite.....	534
Bituminous.....	90,867
Imported from:	
United Kingdom.....	1,637
Canada.....	81,742
Japan.....	
Australia.....	7,223
Other countries.....	265
Coke.....	2,463

Hampton Roads Pier Situation

	Week Ended Nov. 10	Nov. 17
N. & W. Piers, Lamberts Pt.:		
Cars on hand.....	2,223	2,033
Tons on hand.....	124,544	114,431
Tons dumped.....	111,633	125,818
Tonnage waiting.....	10,250	14,500
Virginian Ry. Piers, Sewall's Pt.:		
Cars on hand.....	1,533	1,556
Tons on hand.....	76,650	77,800
Tons dumped.....	109,991	129,239
Tonnage waiting.....	10,670	5,198
C. & O. Piers, Newport News:		
Cars on hand.....	1,191	1,418
Tons on hand.....	59,850	70,900
Tons dumped.....	30,337	35,376
Tonnage waiting.....	2,000	3,500

Reparation Coal Shipments Diminish as Heavy French Stocks Break Previous Records

French Market Shows No Improvement—British Coals Vainly Offered at Attractive Prices—Slight Drop in British Production—Large Tonnage of Unsold Coal on Track

The general situation is unchanged. Demand for industrial coals continues very poor, but the setting in of cold weather has slightly improved the movement of house fuels.

The poor market makes the position at the mines worse from month to month. Stocks at the French and Saar district mines operated for French account have, during the month of September, increased by approximately 750,000 tons.

Stocks at the French mines in August were 1,505,101 tons; in September, 1,700,990 tons; stocks at the Saar mines in August were 45,640 tons, and 608,164 tons in September. Total August stocks were 1,550,741 tons, compared with 2,309,154 tons in September.

These record stocks are due to the lack of orders as total production for September was only about 2,000 tons in excess of August. The very important stocks of coals, mainly British and German, existing at the various French ports, should be added to the above figures.

The September output was practically equivalent to the August production. French mines, including Lorraine, produced 2,402,719 tons in August and 2,432,148 in September. Saar mines produced 930,762 tons in August and 903,698 in September. Total August output was 3,333,481 tons as compared with 3,335,846 in September.

British coals are being vainly offered at heavy discounts. Buyers still cling to the idea that prices can go down still further and only purchase to cover their most urgent requirements. Because of the slow demand, deliveries of German indemnity coals diminish from month to month.

The modification of railway rates, which amounts to about 12 fr. per ton, is materially extending the radius of Saar coals in France. Reductions in the price of metallurgical coke are expected at an early date.

British Quotations Still Dropping

Production in the United Kingdom shows a slight drop. The output during the week ended Nov. 5 was 4,182,000 gross tons, as compared with recent weekly figures of around 4,250,000 tons.

Home and export markets are somewhat improved for the South Wales operators. Heavy tonnage on track still remains, however, and colliery owners are still engaged in stiff price competition.

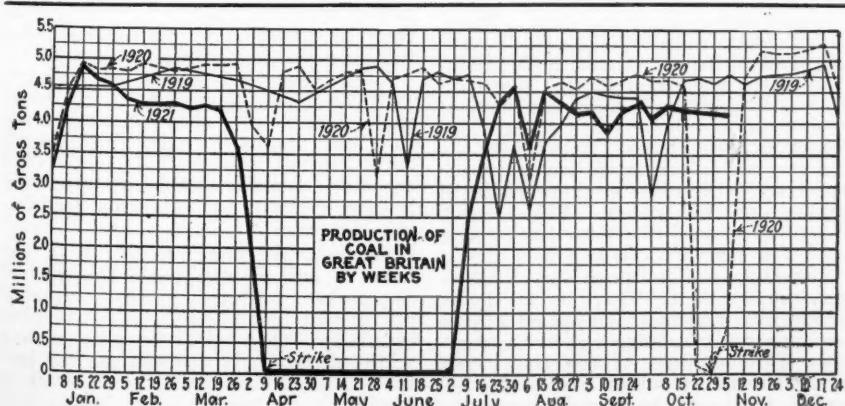
A statement that as a result of the reduced wages many collieries would be enabled to export large steam coals in December at 20s. f.o.b. and still make a profit has drawn a denial from the South Wales Coal Owners' Association. This organization gives details, showing that with wages at a minimum of 13s. other costs would bring the total to 26s. 3d., making no allowances for profit or capital charge.

Alexander V. Dye has been appointed an American commissioner with headquarters at London. He will devote particular attention to the coal situation. He has been instructed to pay a personal visit to the British coal fields and report on his observations. Mr. Dye formerly was with the American International Corporation.

The National Federation of Colliery Enginemen and Boilermen — a body with 22,000 members — has decided by an overwhelming majority to secede from the Miners' Federation of Great Britain, according to advices to the Department of Commerce from the American Consulate General in London. The enginemen in South Wales similarly broke away in August. The action of the enginemen is an outgrowth of the strike. The miners' leaders ordered all "safety men" to cease work. This would have flooded the mines and resulted in great damage and would have prevented the return of thousands of miners when they were ready to resume work. The safety men state that they are ready to enter into a working agreement with the miners' federation, but will not subject themselves to dictation from that body.

Coal Paragraphs from Foreign Lands

GERMANY—Ruhr production during the week ended Nov. 5 was 1,545,000 metric tons, according to a cable to *Coal Age*, as compared with 1,776,000 tons in the preceding week. The output of Ruhr coal for the first nine months of 1921 is estimated at 70,000,000 tons, as against 64,000,000 in 1920 and 87,000,000 in 1913.



ITALY—Best Cardiff steam is quoted 39s. 6d., Genoa, according to a cable to *Coal Age*. The general electrification of the railroads of Italy already is resulting in a saving of coal. From Sept. 1, 1920 to June 30, 1921, electrification took place on five roads totaling 234 kilometers. During the present year a total of 434 kilometers of road will be electrified. The savings in coal resulting from the projects amounted to 160,000 tons at the end of June.

Pier and Bunker Prices, Gross Tons

(*Foreign Bunker Quotations by Cable to Coal Age*)

PIERS

	Nov. 12	Nov. 19†
Pool 9, New York....	\$5.65@ \$5.75	\$5.55@ \$5.75
Pool 10, New York....	5.45@ 5.50	5.40@ 5.50
Pool 9, Philadelphia....	5.70@ 5.90	5.50@ 5.80
Pool 10, Philadelphia....	5.50@ 5.65	5.50@ 5.65
Pool 71, Philadelphia....	6.00@ 6.10	6.00
Pool 1, Hamp. Rds....	4.75@ 4.90	4.75@ 4.90
Pool 5-6-7 Hamp. Rds....	4.25	4.25
Pool 2, Hamp. Rds....	4.50@ 4.75	4.60@ 4.75

BUNKERS

	Nov. 12	Nov. 19†
Pool 9, New York....	\$6.05@ \$6.15	\$5.95@ \$6.15
Pool 10, New York....	5.85@ 5.90	5.80@ 5.90
Pool 9, Philadelphia....	6.00@ 6.20	6.00
Pool 10, Philadelphia....	5.75@ 6.00	5.75@ 6.00
Pool 1, Hamp. Rds....	5.05	5.00@ 5.10
Pool 2, Hamp. Rds....	4.75	4.75@ 4.85
Welsh, Gibraltar....	45s. f.o.b.	45s. f.o.b.
Welsh, Rio de Janeiro....	65s. f.o.b.	65s. f.o.b.
Welsh, Lisbon....	52s. f.o.b.	52s. f.o.b.
Welsh, La Plata....	60s. f.o.b.	60s. f.o.b.
Welsh, Marseilles....	125 fr.	125 fr. f.o.b.
Belgian, Antwerp....	40s.	40s. f.o.b.
Welsh, Genoa....	45s. t.i.b.	45s. t.i.b.
Welsh, Madeira....	45s. f.a.s.	45s. f.a.s.
Welsh, Teneriffe....	45s. f.a.s.	45s. f.a.s.
Welsh, Malta....	47s. 6d. f.o.b.	47s. 6d. f.o.b.
Welsh, St. Michaels....	60s. t.i.b.	60s. t.i.b.
Welsh, Las Palmas....	45s. f.a.s.	45s. f.a.s.
Alexandria....	48s. f.o.b.	48s. f.o.b.
Bombay....	35 rupees	35 rupees
Capetown....	42s. 9d.	42s. 9d.

C.I.F. Prices, American Coal

(In Gross Tons)

	Nov. 12	Nov. 19†
	Low	High
	Vol.	Vol.
French Atlantic....	\$8.90	\$8.65
West Italy....	8.80	8.60
The Plate....	9.60	9.35
Rio Janeiro....	9.20	9.00
Havana....		7.00

These quotations are purely nominal and as far as can be learned, no business is being done in these markets.

Current Quotations British Coal f.o.b. Port, Gross Tons

	Cardiff	Nov. 12	Nov. 19†
	Admiralty, Large....	26s. 9d.	26s. @ 26s. 6d.
	Steam, Small....	19s	18s 6d. @ 19s. 6d.
Newcastle:			
Best Steams....	22s. 9d.	23s.	
Best Gas....	24s. 3d.	24s.	
Best Bunkers....	23s. 3d.	22s. @ 23s.	

† Advance over previous week shown in **heavy type**, declines in *italics*.

Export Clearances, Week Ended, Nov. 17, 1921

FROM HAMPTON ROADS

For Argentina:	Tons
Br. SS. Clifftower.....	4,710
Nor. SS. Torlak Skogland.....	4,246
For Atlantic Islands:	
Nor. SS. Bowden, for Kingston.....	1,038
For Brazil:	
Jap. SS. Kasha Maru, for Porto Ferreira.....	6,729
Am. SS. Robin Hood, for Rio de Janeiro.....	8,497
For Canada:	
Russ. SS. Tobolsk, for Bathurst.....	2,110
For Cuba:	
Am. SS. Levisa, for Banes.....	1,231
Am. SS. Mariana, for Havana.....	4,115
Am. S.S. Laurie Annie Barnes, for San Juan.....	1,088
For Italy:	
Ital. SS. Caprera, for Genoa.....	9,902
For Peru:	
Br. SS. South America, for Lima.....	551
Am. SS. West Catanace, for Bremerton.....	7,819
Nor. SS. Cisay, for St. Thomas.....	3,324

FROM PHILADELPHIA

For Cuba:

Nor. SS. Gran, for Havana..... 1,152

Reports From the Market Centers

New England

BOSTON

Buyers Indifferent—Price Cuts More Common—Continued Accumulation at Hampton Roads—Operators Curtail—Anthracite Shows Signs of Slowing up.

Bituminous—Steam demand is more ragged than ever. Factors are bringing to bear such pressure on buyers that the latter show little interest, and in cases where there is inclination to buy the consumer knows that by shopping around he can get a low price. Not only are several middle houses striving to sell on commission what the agencies themselves are trying to dispose of to the same trade, but market cargoes are still going forward.

These conditions do not promote stability and naturally advantage is taken of the generally mixed situation. While there continue to be scattered indications of better business, the improvement is so gradual that no reaction is looked for now until 1922.

Operations on the B. & O. have again sold down to \$1.50 per net ton and grades that were listed as Pool 9 have sold as low as \$2.25 per gross ton f.o.b. mines. Distress coal from Hampton Roads has sold at materially less than the \$6.25 figure on cars Boston which continues the general asking price on Navy acceptable grades. For the most part, however, quotations are on the same level as a week ago.

A prediction like this rests on the fact that several smokeless operators have already bowed themselves out from active competition. One group of New River mines, for instance, has put into effect a rigid curtailment to one day per week, realizing that present net returns do not justify digging coal on costs as they now prevail. We expect to see this policy followed by others, and it will be interesting to watch the record of accumulations at Hampton Roads the next two or three weeks.

While Pocahontas agencies seem to be moving their output in better volume it is pretty certain the aggregate dumpings for November will show something of a falling off from October tonnage. Some of the interests on the N. & W. have reduced prices on contract in order to insure a better flow of coal on old obligations and thereby leave the producer with less dependence on the spot market. In one instance, the net ton price f.o.b. mines has been reduced to \$2.25 (\$2.52 gross) for Western and line trade.

The outlet for the Pennsylvania districts remains much restricted. The market for trans-shipment at all the ports as well as the very largest share of New England is practically wiped out for the present, due to the commanding position occupied by the smokeless shippers. Even the most favorably known quality grades are being absorbed with difficulty and since there is no prospect of early improvement in this respect it seems certain

the Pennsylvania operators are facing a very slow winter season.

Anthracite—While there is still pressure to secure stove and chestnut, there are signs that demand is easing off. Doubtless much of this is due to mild weather, but back of it also is a real shortage of ready money on the part of householders. Reports show not only a general dullness among consuming trade, but also a disposition not to buy until actually needed.

A considerable tonnage that in other years was distributed during the summer and early fall is now to be spread over the winter months. Prolonged cold weather or any newspaper discussion of possible interruption would of course stiffen present inquiry, but in the absence of such considerations, retailers look for only a minimum winter business.

Tidewater—East

NEW YORK

Weather Conditions Affect Market—Anthracite Buying Slow—Bituminous Market Quiet—Considerable Coal at Piers—Operators Consider Contract Making.

Anthracite—There is no briskness in the trade. Weather conditions have been completely the reverse of what is usually expected at this time and the falling off in buying has been increased by the extra purchasing indulged in when there were threats of railroad and other labor troubles.

Stove and chestnut are moving without any difficulty but even in these coals there does not seem to be the desire that prevailed recently. Dealers seem able to procure the major part of their supply from the companies but the independents are not having any trouble to dispose of their product. What they lack in demand for chestnut here is easily overshadowed from the northern section of the state where this size is largely used.

Egg coal is not easily moved and is accumulating rapidly. The average quotation for independent egg mixed with either stove or chestnut was around \$8.25 although some sales were reported at \$8, or 25c. above company circular.

Steam sizes were plentiful. Many loaded boats were waiting for buyers and quotations for these have about reached the low-water mark. Local retail yards contain all they can hold of these coals and dealers are not anxious to add to their stocks. Buckwheat No. 1 sold slowly, rice and barley moved easier. Quotations for these coals at local piers the middle of the week ranged at around \$5.50 for buckwheat, \$4.50 for rice and \$1 less for barley.

Bituminous—Conditions fail to show any improvement. There is no desire to purchase and industrial plant buyers are apparently keeping out of the market. The nearness of the time when transportation troubles are to be expected seems to have no terrors for

consumers as they display no tendency to fill their bins.

Salesmen generally fail to see any bright spots on the horizon, some predicting scarcely any improvement this winter while others, more optimistic, do not expect any big rush of business. The repeated assertions of both government and railroad officials that there is little likelihood of any reduction in coal freight rates at present does not deter some large consumers from clinging to their belief that rates are to be cut and for this reason many buyers are purchasing nothing but their immediate requirements.

There was plenty of coal at the local docks to meet requirements, estimates running as high as 2,000 cars, of which it was believed about one-half was for public utility needs. Demand was slow however, and the free coals were hard to move. Regular customers with contracts were hard pressed to find space for taking their ordinary shipments and in some instances requested operators to withhold shipments, although scarcely more than the normal tonnage was being sent here.

Operators were more inclined to consider contracts than a few weeks back. Inquiries were received by some shippers regarding weekly deliveries up to April 1 and quotations under \$3 were reported as having been made on high-grade coals.

PHILADELPHIA

Anthracite Market Feels Unseasonable Weather—More Cutting of Retail Prices—Steam Sizes Slow—Bituminous Fails to Gain—Spot Prices Fairly Firm.

Anthracite—The retail trade is sluggish, with no immediate prospect of betterment. With a spell of abnormally warm weather, buying is almost reduced to the midsummer minimum. There is not the least question that it will take severely cold weather to put any real life into the trade. The number of canceled orders received by the shippers increased this week, although not in sufficient volume to cause curtailment of operation.

Retailers are shading their figures and unless a sudden change in the weather arrives a price war is not at all unlikely. The old-line retailers continue to ask \$14.50 for stove and nut, but from this point prices shade down 25c. a time until in a few cases \$13.50 has been reached.

Nut is the only size that is really in demand now, and with some shippers stove is actually reported to be somewhat heavy, although not to the same extent as pea and egg. It is becoming a more frequent occurrence to sell pea under the \$6 mark, and some of the larger independents have recently made sales at \$5.50@\$5.75, with some other shippers even 25c. lower.

Yard stocks are almost at capacity, and pea is reaching the point where some dealers are showing a tendency to move this size quietly at drastic cuts. Retail prices of \$10.50@\$10.75 are quite common to the consumer who tries more than one dealer before placing his order.

Bituminous—The present week has been as dull as any since the first of September. Inquiries have dropped off almost completely. The weather naturally holds back the demand and while all interests are anxious for better trading, they fear the outcome if buying is postponed much longer.

Practically nothing is heard of contract prices these days. The consumer has lost interest in protection of this kind, feeling that having gotten thus far with fuel much under the contract figure, he cannot lose now, with the chances of getting coal right to April 1 at less than \$3.25 at the utmost.

In a general way we think it can be said that the iron industry within a radius of 75 miles of the city has improved within the past two weeks. Some of the largest plants which were doubtful of being active until the first of the year, recently expressed more confidence in this regard.

Spot prices have remained stable for the past week for all grades, but with an occasional tendency to a shading off on some ordinary coals, particularly in the case of sales of fair-sized blocks.

BALTIMORE

Demand Poor in All Lines of Soft Coal—Only Best Grades Salable—Hard Coal Business Slowed by Abnormally Warm Weather.

Bituminous—While the talk continues both in coal offices and in general business that the turn of the tide toward better industrial life seems at hand, the coal trade so far fails to reflect this in either a line of ordering or prices. This poor business touches all lines of coal trading.

On bunker business the best grade steam and gas coals are offering at \$5@\$5.20 a gross ton f.o.b. piers before trimming. On line business the prices on excellent coals running to Pools 9 and 71 are \$2.35@\$2.60, net f.o.b. mines, and on gas lump around \$2.40@\$2.50. There is little demand for the poorer grades of coal of any kind.

The general flat nature of the business is shown by the fact that the Western Maryland for the first week in November dropped 52 per cent below the figures for the same week of 1920, or a loss of revenue of \$165,917.11. The figures have not been announced for the B. & O. but it is understood that the decrease for the same period was around 45 per cent.

On export business the November tonnage to the 16th inclusive was 22,028 tons cargo in five vessels, and 1,795 tons bunkers in four of these ships.

Anthracite—A high temperature has materially lessened the demand in Baltimore for hard coal. Almost summer heat has prevailed on some days.

A much improved run of coal during the month of October caught up some 20,000 tons of the gap in the normal supply deficiency at this point caused by the unusually poor deliveries over August and September. The result was that the month of November started in with the trade about 100,000 tons short of the usual amount on reserve.

BUFFALO

Bituminous Trade Quiet As Ever—Consumers Are Indifferent — Anthracite Somewhat Scarce—Coke Weaker.

Bituminous—Demand does not improve. Shippers find consumers so completely stocked up that they are quite indifferent to the market and some of them will be for months to come.

This means not only little for the shipper to do, but all sorts of trouble with the coal when it actually arrives. Rejections that lead to disputes and

lawsuits are much more common now than they would be if the trade was in a normal condition. The claim that anything sold is of poor quality when prices are down or going down, that would not be made otherwise marks a dishonest purchaser and demoralizes trade.

Consumption is probably increasing, but the improvement in that direction is so slow that it does not begin to offset the overstocks that were the result of strike scares. The consumers do not need to complain, for they got the best of the trade, but the sellers are left fairly high and dry. Quotations are as before, \$2.75 for Youghiogheny gas lump, \$2.50 for Pittsburgh and No. 8 steam lump, \$2.25 for Allegheny Valley and all mine run, and \$1.50@\$1.75 for slack.

Anthracite—The trade is rather quiet and if there were a little better supply of stove and chestnut, there would be no complaint.

Demand for independent anthracite, which indicates the real state of the market, shows that some consumers are willing to pay a dollar or so premium for it, rather than to wait, when once they get ready to put in their coal.

Lakes—The movement is much lighter than it usually is at this time of the year, not much more than half the summer activity taking place now. Shipments for the week ended Nov. 16 were only 38,300 tons, of which 15,000 cleared for Milwaukee, 10,000 for Duluth, 7,300 for Menominee and 6,000 for Port Arthur. Freight rates are exceedingly dull at 75c. to Menominee, 60c. to Milwaukee, 50c. to Duluth and Port Arthur. Vessels need these up-cargoes, as grain does not pay enough to enable them to go up light for it.

Coke—Jobbers report another slight reduction in the price. The local demand is as light as ever, only now and then an order being obtainable, mostly to provide for some variety of coke that happens to run short. Quotations are \$4.15 for 72-hr. Connellsville foundry, \$3.15 for 48-hr. furnace and \$2.75 for stock.

Northwest

DULUTH

Shipments to Interior Slump—Small Sizes at Concessions — Navigation Nearly Over — Dock Fires Proving Troublesome.

Sales fell off heavily last week with a resumption of mild weather, and dock men feel that the true weakness of the market has been revealed, and that only necessity will compel the consumer to fill his bins. Retailers are unable to relieve the situation by placing orders, because of financial conditions.

Despite the sag in trade prices are holding firm. Screenings, however, are being offered down to \$4, and buckwheat, which has been consistently weak this year, has dropped \$2.50 from the list price of \$8.50. On the docks 5,900,000 tons are stored and only the fact that shipments are on the wane prevents a serious harbor tieup.

Last week twenty-one cargoes arrived, of which three were anthracite, but only four boats are reported on the way. Not more than twelve more

cargoes will arrive before the close of navigation, according to an estimate made by local vessel owners. Ore shipments stopped Nov. 16, and little grain is in sight.

This season 1,029 cargoes arrived at the Head-of-the-Lakes, according to figures just released. Of these 842 were bituminous and 187 anthracite. This is far above the number received during 1920, and a plentiful supply is assured until long after the opening of navigation next year.

Some coal is being loaded back from the docks to steamers for winter storage. One boat has already been chartered for this purpose and others will be obtained and loaded in the near future. This has been necessitated by burning coal on the docks, and the need of obtaining more room in which to fight the fires.

MILWAUKEE

Unexpected Anthracite Reduction Causes Flurry in Coal Circles—Soft Coal Market Lifeless — Dock Fires Occur.

Coal men at Milwaukee experienced a surprise on Nov. 15, when an order came from the East reducing anthracite prices 20c.@\$60c. per ton. Retail prices of hard coal are now as follows: Egg, \$15.70; stove, \$16.00; chestnut, \$15.95; pea, \$14 and buckwheat, \$11.50. An extra charge of 75c. is added when coal is carried in.

A cut in price at this season of the year is unprecedented, and is attributed to the action of large dealers in the East who are equalizing prices in order to meet competition. It is doubtful whether this will stimulate business, this year at least. Consumers simply won't buy until they get "good and ready," as the saying is.

Bituminous coal markets are lifeless, especially for screenings, which are practically unsalable and yards are well stocked with this grade. Fires continue to bother yard men, who are handicapped in getting at the combustion centers because of the overloaded condition of the docks.

Receipts in the first half of November aggregate 53,331 tons of anthracite, and 165,850 tons of soft coal. During the same period in 1920 the receipts were 47,255, and 216,509 tons, respectively. The season's receipts of anthracite to date total 901,376 tons, soft coal, 2,507,694 tons, against 748,618 tons of the former, and 2,145,926 tons of the latter during the same period in 1920.

MINNEAPOLIS

Buying Confined to Urgent Needs — Wintry Weather Only Slight Bolster—Less Indulgence in Price Cutting.

Those who had fond anticipations that this fall would be a replica of last year, have had some reason to amend their views. While it has not been unduly severe, there has been a little cold weather with several fairly good snowfalls. This makes it appear wintry, even though the temperature is fairly high.

With the snows and near-zero temperatures, there has been a picking up in the demand from all sources. The trend continues to be for buying in smaller quantities. It seems to be assured that for this season buying will be confined to smaller units right along.

It is true that because of the dock

source of supply, there is a stock on hand to serve for the winter. But this must run until well into April on any conditions likely to arise, or it will be compulsory to ship Eastern coal all-rail at a considerable additional freight cost. And it is confidently expected that April 1 will see a complete cessation of production when the miners' wage scale comes up for adjustment.

The bitter discontent which prevails against the high cost of coal is distributed three ways in the minds of buyers. They feel that producers get too long a margin; that miners get too high a wage scale; and that carriers get too much freight charge. They have contended against these by a buying strike which has prevailed for months. There is no ground for any belief that the public is indifferent to the wage scale nor reconciled to the present range of costs. The public is distinctly and emphatically "sore" on the entire state of things, as shown by the support which any suggestion for legislation regulating and controlling coal mining and distributing instantly receives.

The local market remains about as it has been. Buying is confined to urgent needs, which are expanding somewhat as winter draws on. Keen efforts are being made right along to induce cutting of prices on steam coal. There is no point at which buyers seem willing to admit values might stop and be reasonable. Any concession made is merely the ground from which to work for further cuts.

Canada

TORONTO

Dealers Doing Fair Business—Market Overstocked with Bituminous—Distress Prices.

There is practically no change in market conditions. Dealers are doing a fair amount of business but trade is by no means as brisk as is usual at this season. Domestic consumers apparently have no fear of a possible shortage and are not anxious to lay in supplies.

Shipments from the mines are coming forward steadily and stocks on hand are plentiful. Bituminous is little in demand and dealers who ordered extra supplies in view of threatened strikes find the market glutted. Quotations are unchanged since last report. However, there is some coal on track going at distress prices.

Inland West

ST. LOUIS

Business Unusually Quiet—Retail Stocks Topheavy—Coke Prices Increased.

There is so little domestic moving that it does not amount to anything. Dealers' yards are jammed and many of them are paying demurrage. Summer weather prevails after a few days of cold. It will take a couple of weeks of cold weather to get things going right.

Country domestic business is easy for practically the same reason as in St. Louis. A little tonnage is going

to Kansas City and Omaha, but it does not move in any volume.

Steam locally is fairly active on account of the mines not working full time and steam sizes have a tendency to show better prices. Outside steam is quiet except in spots, and considerable tonnage is moving to Chicago, especially screenings.

The anthracite market is quiet and nothing is moving in the way of Arkansas or Eastern smokeless. Deliveries of coke are good and there has been an increase locally in the price of 50c. per ton. Byproduct is now \$10.50 and gashouse \$9.75.

DETROIT

Bituminous Demand Irregular and Shipments Light—Price Variations Are Few—Slow Retail Distribution of Anthracite.

Bituminous—Offerings of steam or domestic sizes are not arousing among buyers the degree of interest that wholesalers and jobbers believe should be developing at this season of the year. Buying demand continues inactive and irregular.

The narrow market for steam coal is believed by some of the jobbers to be due in part, at least, to a more or less general belief that there will be a lowering of railroad freight rates within a few weeks and that by holding back orders, they will be in a position to show a saving on the transportation cost of their coal. The unsatisfactory condition in general business also causes a reduction in coal buying.

Lump from Ohio mines is offered at \$3@\$3.25, egg is around \$2.40, mine run, \$1.90, nut and slack, \$1.15@\$1.25. West Virginia 4-in. splint is \$3.25, 2-in. lump, \$3.15, egg \$2.50, mine run \$2, nut and slack \$1.25. Pittsburgh No. 8, 14-in. is quoted \$2.40, 3-in. \$2.35, mine run \$2.15 and nut and slack \$1.65. Smokeless lump and egg is \$2.75, mine run \$2.65 and nut and slack \$1.60.

Anthracite—Domestic consumers are not purchasing as freely as the retailers had expected. Distribution has been retarded, despite the temporary stimulus of lower temperature. Stocks in retail yards continue large while consumers are restricting their orders to small lots instead of taking the entire season's supply as was the custom of many in previous years.

CLEVELAND

Coal Market Strikes Snag—Prices Weakening as Distress Coal Appears—Pocahontas Grades Lower at Retail.

In the last few days the coal trade has run into what are perhaps the most unfavorable conditions of the year. It is all a result of the threatened railroad and mine strikes which never came. The prospects of suspension of coal supplies caused consumers to cover their requirements for a few weeks. The present reaction is entirely natural in view of the fact that there has been no perceptible movement away from the hand-to-mouth procedure of buying. Industrial plants are content to stand still on the stocks they have, and in some cases these stocks are sufficient to last until the first of the year.

In the meantime the bottom has been dislodged, partially at least, from the market, which is flooded with fuel. As a result, so-called "distress" coal is being sold. This is due largely to transportation considerations.

The railroads are becoming strict about furnishing empties to mines which have unmoved loaded cars on track. Operators are facing the alternative of moving or dumping the coal. Moving it means bringing it to an uninviting market and unless it can be disposed of the operator must pay demurrage. In these circumstances it is only natural that no reasonable offers are being turned down.

Retail dealers are being offered large supplies of Pocahontas and steam coal, with the result that the former has broken 25c. @ 50c. a ton. The delivered price for shoveled lump is now \$10.75 and mine run is selling for \$8.50 at some leading yards. Hard coal prices remain unchanged. The fact that there has been a minimum of cool weather so far this season has served to keep the demand light. Another factor is the gas supply which is still fair.

Bituminous coal receipts for the week ended Nov. 12, were the largest of any week during the present year, 2,087 cars were received, divided; 1,551 cars for industries and 536 cars for retail dealers—an increase of 189 cars over the preceding week. Cleveland normally requires about 1,500 cars of soft coal per week, but during much of the year 1921, receipts have averaged under 1,000 cars. The week's receipts will probably be the highest of the year.

COLUMBUS

Market Dullness More Pronounced—Mild Weather Cuts Domestic Trade—Steam Business Practically Nil—Prices Weaken.

Because of rather good stocks, accumulated during the time of threatened railroad strike and also because of continued mild weather, the Ohio coal trade is in the worst shape in weeks. The volume of business is very much reduced and has resulted in some extremely low offerings, especially of mine run and screenings.

Retail stocks in many sections are heavy. This precludes heavy buying until dealers are able to move some coal. Householders are slow in ordering but retail prices are still fairly well maintained.

Hocking lump retails \$6@\$6.50 and West Virginia splints around \$7@\$7.50. Pocahontas is \$9@\$9.50. Anthracite sells around \$15. The fact that many dealers refused credit is curtailing business.

Steam business is slow. Many consumers have sufficient reserves for some time, especially in view of reduced consumption. Railroads are not buying to any extent. Public utilities, while pretty well stocked up are the best customers. Public institutions are also buying and bids for 125,000 tons for various state institutions will be opened soon.

Lake trading is still active but the end is in sight. The H. V. docks at Toledo loaded 97,696 tons during the week ended Nov. 12, as compared with 147,646 tons the previous week. The total loaded since the season opened is 4,393,826 tons. During the same week the T. & O. C. docks loaded 27,947 tons, making a total of 1,062,986 tons for the season.

CHICAGO

Market Extremely Depressed—Full Retail Yards Affect Domestic Production—Steam Sizes Impossible to Move.

The coal trade has fallen upon evil times, as the demand is no better today

than it was early in July. This is true both of the steam and domestic coals. Sales agents and operators have flooded the country with letters as well as sales campaigns of one sort or another. In spite of this, however, orders are not forthcoming and the market lags.

Retail dealers refuse to listen to coal salesmen, in fact, some of them have pasted signs on their office doors that calls from coal salesmen are not wanted at this particular time. These dealers report their yards loaded to overflowing and that sales are practically at a standstill. The domestic buyer has just about as much coal in his bins as he wants at the present time, and nothing can be done to stimulate the situation. Retail dealers report as many as fifteen to thirty calls a day from coal salesmen, who are combing the territory for business.

The steam market is slumping even worse than it did lately, and it is our prediction that the end is not yet in sight, unless some unforeseen development takes place in regard to the check-off controversy with the United Mine Workers. Some steam coal is being purchased by the packers, but not enough to make any material difference in the market. As the cement plants, served from the Chicago market, are all down, this has thrown an extra surplus of screenings on the trade, tending to weaken the situation still further.

Eastern coal is coming in smaller volumes than last week and, incidentally, at cheaper prices. The letdown in the coal market, brought about by the settlement of the railroad strike and temporary settlement of the check-off trouble, has affected everybody in the industry. Good Kentucky coals went down to \$3.25@\$3.50 in the block sizes. New River and Pocahontas prepared sizes were selling as low as \$4.25, while mine run of this grade went down to \$2.25 and lower.

CINCINNATI

Market Is Topheavy—Distress Coals Depress Prices—Spot Sales at Minimum.

Coal piled up at Portsmouth, Russel and Latonia in anticipation of a shortage through strikes, with "no bill" coal to be faced in quantity in the usual distributing markets dependent on the Cincinnati sales offices has played havoc with the trade. Coupled with this is an overstocked retail market that has been little drawn on for supplies through weather conditions. As a result orders have been at a minimum and with dropping prices the rejections and cancellations have been greater than for some time.

Bituminous coals have borne the brunt in the price scaling. Some Kentucky slack sold down to 60c. although the usual range is 70c. @ 90c. There was also a drop in lump, low grades of gas coming down to \$2.25. Well-known brands from Kentucky are still \$3.25@\$3.50. Mine run took a drop to \$1.40.

Smokeless has not been hit with such severe price cuts. Brokers have been able to get both New River and Pocahontas lump at \$4 while the general trade have been paying \$4.25@\$4.50. Nut has dropped to \$3. Mine run \$2@\$2.50 and slack, due to the lower prepared output is being held a little stronger or at \$1.25@\$1.50 for the better grades, while the low grades bring \$1@\$1.10.

There has been no change in retail prices.

South

BIRMINGHAM

Steam Market Extremely Sluggish—Domestic Coals Also Drag—Trade More Quiet Than Ever.

There is no coal buying worth mentioning in this market. Consumers have practically quit making inquiries and agents on the road are having little success in disposing of fuel. Reports indicate that the dullness now prevailing is about as acute as any which has been experienced this year. Industries evidently stored enough coal prior to the threatened strike to carry them for a while and will not again enter the market until compelled to do so.

Sales are extremely light in the spot market as a result. Steam quotations range as follows: Big Seam mine run, \$1.50@\$2.50, washed \$2.15@\$2.40; Carbon Hill mine run, \$1.75@\$2.65, washed \$2.50@\$2.85; Cahaba mine run, \$2.50@\$2.75, washed \$2.50@\$3.25; Black Creek mine run, \$2.40@\$2.75, washed \$2.50@\$3.25; Pratt mine run, \$2.35@\$2.50; Corona mine run \$2@\$2.50.

Domestic mines are running irregularly as there is very little demand for the output from such operations. Retailers are doing practically nothing toward reducing their stocks and therefore cannot take on additional tonnage from the mines. Weather conditions continue unfavorable to a more active market. Lump and nut quotations are as follows: Big Seam, \$3.25@\$4.25; Carbon Hill, \$3.50@\$4.25; Cahaba, \$5@\$7.25; Black Creek, \$5@\$6; Corona, \$4@\$4.50; Montevallo, \$7.25.

LOUISVILLE

Market Dies Down—Steam Consumers Using Heavy Stocks—Domestic Sluggish with Warm Weather.

The trade is certainly feeling the light demand for coal. Retailers claim that they are selling a little steam coal, filling contracts, etc., but that deliveries of prepared are very slow. Jobbers pronounce the market as "sick." Much of the dullness is due to stocking in October against the proposed rail strike, which has resulted in consumers being protected for the time being.

That a good deal of coal was stocked in October is shown by a report from the coal traffic department of the L. & N., which broke all previous shipping records in October; when it handled 52,717 loaded coal cars.

Industrial buying is light and there are practically no consumers in the market, while at reduced prices some operators are not especially anxious to run. Following the strike agitations, the buyers and general coal trade is endeavoring to catch its second breath.

Southwest

KANSAS CITY

Warm Weather Delays Domestic Buying—Steam Stocks Topheavy—Prices Decline.

Summer weather and comparatively light operation of steam plants has resulted in practically wiping out the demand for nearly all grades of coal.

Retail dealers have, in anticipation of a heavy demand, stored coal to the limit of their capacity and in some instances rented additional storage room. When the strike threatened steam plants took in extra supplies and are now using these up, which has reduced the demand to almost the vanishing point for steam grades.

There has been some recession in prices, especially Arkansas semi-anthracite lump and Kansas lump and nut. Quotations are as follows: Kansas lump, \$5; mine run, \$4.25; nut, \$4.50; mill, \$2.75; slack, \$2.50. This is a reduction of 50c. on lump and \$1 on nut. Northern Missouri lump is \$4.75; mine run, \$3.50; washed slack, \$3.25; raw slack, \$2.50; Arkansas lump is \$7@\$7.50, mine run, \$4.25; slack, \$2.25. McAlester Oklahoma lump is \$8.50; nut, \$7; slack, \$2.50.

West

SALT LAKE CITY

Market Quiet—Prices Shaved—Retail Business Hurt by New Trade Names.

Business continues rather quiet. Many consumers are still buying from hand-to-mouth. A cold day sends up the business barometer, but as soon as the weather gets a little warmer orders again drop.

Dealers in their efforts to get the public to store coal for the winter have completely demoralized the coal nomenclature of the state. Not being able to reduce the prices as the consumer demanded they should, they have given high sounding names to cheaper grades of coal and one is no longer able to judge the quality by the name alone, except where straight lump is mentioned, and this is kept in the background a great deal. The result is that the whole coal business is distrusted.

Shipments over Soldier Summit have fallen to 250 cars a day. Recently from 350 to 400 cars daily were moved.

DENVER

Miners Strike in Protest at Wage Slash—Market Is Flat—Consumers Await Lower Prices.

On Nov. 17, a strike in the mines of the Colorado Fuel and Iron Co. over the 30 per cent wage reduction resulted in martial law being proclaimed.

Mild weather has provoked an air of indifference among consumers, who, otherwise, might have purchased in anticipation of the strike. The prospect that a cut in wages might bring price reductions induces many to withhold from buying until they are down to the last few shovelfuls.

The C. F. & I. Company, in order to stimulate domestic sales and to resume operations in its steel mills, disclaims any contract with the union. Miners' officials resent the move as a violation of the agreement advanced by the Government, which does not expire until April 1.

Cancellation of orders in nearby states comes as the result of the fight made by farmers over the price of corn. They have told the large operators that it is cheaper to burn corn at 20c. a bushel than coal at \$10 or \$15 a ton. The use of corn as fuel in mild weather has resulted in a 40 per cent reduction in operations in some mines.

News From the Coal Fields

Northern Appalachian

PITTSBURGH

Check-off Injunction Question Holds Strike Possibilities — No Market Improvement—Consumers Apathetic.

Private advices from Chicago being to the effect that Judge Anderson's injunction against the check-off is likely to be sustained, the probability is that there will be another strike call. If buyers are in the same mood as formerly this will not greatly affect the demand, consumers being quite apathetic and disposed to take their chances rather than to stock up.

Operators are strongly inclined to the opinion that a substantial and satisfactory reduction in the wage scale for the period beginning April 1 will be obtained without much difficulty, putting Pittsburgh coal again on a competitive basis with the non-union fields, which of late have been getting nearly all of the trade. Elimination of the check-off is regarded as a decided advantage.

The market has been practically stagnant, the past week showing no noticeable improvement. Operations are confined almost entirely to the filling of contracts, which are chiefly for gas coal. Even demand for domestic is poor.

Prices are not notably changed, being practically nominal on steam coal since there is so little buying, but being actual market figures on gas coal, which sells in a limited way: Slack, \$1.30@\$1.50; mine run, \$2.10@\$2.20; 4-in., \$2.60@\$2.70; domestic 1½-in., \$2.90@\$3.25.

UNIONTOWN

Weaker Market Conditions—More Frick Ovens Active—Coal and Coke Quotations Drop.

Weather market conditions and a tonnage slump featured the week in Fayette County. Production dropped as prices weakened and the outlook for the immediate future is less optimistic than for the past two months. With the addition of 630 ovens to the active list last week the H. C. Frick Coke Co. has a total of 2,000 ovens in commission.

Independents have not yet followed the Frick increase in operating units and the estimated coke production for the week will show no gain over last week's loss of some 6,000 tons.

Coke is selling at a range of \$3@\$3.25, with little demand. Steam coal is being offered as low as \$1.35 although sales as high as \$1.60 have been reported. Bringing in of some furnaces by the Steel Corporation has not tended to stiffen the market trend as yet.

CONNELLSVILLE

More Ovens Going Out—Demand Not Supporting Recently Increased Production—Foundry Coke Also Slow.

There has been additional blowing out of merchant ovens on account of demand not having developed and it is

made plain that some operators were entirely too optimistic in their recent putting in of ovens. Conditions in the iron trade have not improved at all in the past 30 days. There is no inquiry for furnace coke on contract, while the furnaces in blast seem to be well supplied by old arrangements and have no occasion to buy any spot coke.

The market has grown weaker still since the last report, there being considerable accumulations of coke on track. The \$3.25 price, minimum three weeks ago and maximum a week ago, is no longer anything but a nominal asking price of some operators who do not expect to sell.

Foundry coke shows lighter demand and operators are beginning to conclude that actual consumption is decreasing. Prices have suffered further from the blowing in of ovens to make furnace coke, as these ovens can offer foundry coke readily through having means of disposing of coke that is culled out in selecting foundry. Last summer there was a time when foundry coke had to be made at plants that had no furnace coke outlet and the price of foundry was naturally high. We quote spot furnace \$3@\$3.15 against \$3.10@\$3.25 a week ago and spot foundry \$4@\$4.50, against \$4.25@\$4.75 a week ago. The Courier reports production in the week ended Nov. 12, at 27,570 tons by the furnace ovens and 34,960 tons by the merchant ovens, a total of 62,530 tons, a decrease of 4,870 tons.

ANTHRACITE

Strikes Affect Production—Controversies Soon Settled—Domestic Coals Strong.

Production was cut down last week due to the strike at nine of the Pennsylvania Coal Co.'s collieries. This is an outlaw strike and 11,000 men have been idle. The primary cause was the refusal of a colliery superintendent to promote a blacksmith's helper to blacksmith when the former blacksmith quit. The colliery locals have voted to go back to work.

Another strike occurred at the Nootingham colliery of the Lehigh & Wilkes-Barre Co. This strike was caused by the check-out system, which makes the men check out at certain hours. The men claimed that when they finished their work they should be permitted to leave the mine. This trouble has also been settled.

CENTRAL PENNSYLVANIA

Production Slumps—Spot Prices Below Union Production Costs—Wage Reductions Necessary.

Production has dropped back a peg since the spurt which followed the threatened strike, figures for the first week of November showing a total of 14,131 cars as compared with 17,936 cars during the last week of October.

The maximum monthly production for 1921 was in October when 3,893,325 tons were produced. This is approximately 70 per cent of the best production for October, which was in 1919.

Mines that have made wage adjustments are still leading in production and, according to figures compiled by the Central Pennsylvania Coal Producers' Association, show a total output of 32,911,227 tons in ten months.

The non-union operator can produce coal for \$1 per ton less than it can be mined under the union scale. Prices on the spot market are quoted at a figure below the production cost of the union mines.

Many operations are able to produce coal because of contracts entered into last spring when coal was higher. However, about 80 per cent of these contracts expire with April 1, and it is obvious that these contracts cannot be renewed then so that unless a wage settlement is made, practically all new business will go to the non-union field.

EASTERN OHIO

Production Slumps—Market Is Stagnant—Heavy Stocks Preclude Further Buying—Prices Drop.

A recession from the high point production occurred during the week of Nov. 12. Armistice Day was generally observed and the tonnage mined on that day was small. Total output amounted to 360,000 tons or 70 per cent of five-day capacity, or 58 per cent of six-day capacity. A decrease of over 100,000 tons resulted, when compared with the preceding week.

Cumulative production for the year indicates an aggregate output of 15,663,000 tons as against a potential capacity of 28,460,000 tons. The field has operated at an average of 56 per cent of capacity for the year to date. Association mines worked 52 per cent of possible worktime and produced 60 per cent of rated capacity for the five-day week.

Operators have enjoyed a good run of business during the past few weeks, but as was anticipated as a result of the artificial stimulus supplied by the impending strikes, the trade throughout this section may now be said to have about reached the saturation point. The market is draggy, and the stocking up during the past six weeks by large consumers has developed a deeper stagnation in inquiries and orders than has been experienced in some time.

Notwithstanding rumors that the carriers are suspending further shipments temporarily from some of the mines on account of being overstocked, it is estimated that about 40 per cent of the output went to the railroads for fuel during the week. Recent events have caused a softening of prices, especially on steam coals.

However, the trade is incorrigibly optimistic in the belief that colder weather and further recovery in industry will create a new demand and that the apparent indifference on the part of consumers will disappear when the present stocks of fuel now on hand are slightly reduced.

FAIRMONT AND PANHANDLE

Spot Markets Plugged—Canada Over-supplied—R.R. Coal the Mainstay of Production.

FAIRMONT

Spot markets were as sluggish as ever during the week ended Nov. 12. The bulk of production was for the railroads, although some of it has been

going to Canada. Production was well above the average on the Morgantown and Wheeling Ry. The demand for prepared sizes had dwindled, if anything, and slack coal was almost impossible to move.

NORTHERN PANHANDLE

But for the large tonnage of railroad fuel loaded the output would have been small indeed. Mines found their best markets in the West, Buffalo and Canada, although heavy Dominion shipments have plugged that market. A fairly large number of inquiries were received but these had little or no bearing on business.

UPPER POTOMAC

Production Still at Minimum—Spot Market Inactive—Non-Union Competition Too Strong.

The second week of November brought no change in operating conditions. Production was at the very minimum, with the majority of mines not in operation at all. Some railroad coal was being produced, but spot prices were so low that there was nothing else to stimulate production. It was almost impossible to move Pools 11 and 18 because of the lower prices prevailing in non-union regions.

Middle Appalachian

HIGH VOLATILE FIELDS

Car Shortage Affects Production—Poorer Markets Prevail—Prices Weaken.

KANAWHA

Poor markets and low prices kept down production during the week ended Nov. 12. What little demand there was existed only for good splint lump, and comparatively few mines were able to operate. Slack was being sold as low as 90c. per ton. There was no export demand, most of the coal going to Western markets.

LOGAN AND THACKER

A car shortage was still affecting Logan production, but for which it would have been possible to load in the neighborhood of 60,000 tons a day. Prepared sizes lead the market. However, automobile concerns were taking larger steam tonnages, and there was also a favorable movement of coal down the Ohio River.

Thacker operating conditions were unchanged, the output reaching about 85,000 tons with 110,000 tons charged to "no markets." A car shortage was also noticeable. Spot sales were confined, for the most part, to prepared sizes, and the bulk of the movement was to Western points. Steam coals were still sluggish.

NORTHEASTERN KENTUCKY

Buying slumped after the danger of a mining shutdown ceased to be regarded as imminent, the output as a result not reaching more than 45 per cent of capacity. The steam market was unusually dull, little other than domestic coal being sold. The main movement was to Western markets. Retail buying was only slightly stimulated by colder weather.

VIRGINIA

Although production was maintained at about 60 per cent of capacity, as

during preceding weeks, yet only a small proportion of the mines were in operation. Prices were far from satisfactory, \$2.25 for mine run and \$1.25@\$2 for slack, and this had a tendency to discourage production. For the better grades of lump a price of \$3.50@\$4 could be secured.

LOW-VOLATILE FIELDS

Smokeless Hard Hit by Market Slump—Slack in Distress—Car Shortage Increases—All Prices Weaker.

NEW RIVER AND THE GULF

Low prices prevailing on smokeless coals together with high mining costs resulted in a continuance of idleness at most of the New River mines during the week ended November 12. Even where mines did find it possible to continue they were not operating more than a day or so. There was no Tidewater buying and Inland business was quiet except on prepared coal. Slack was in an extremely poor position and sold lower than \$1.

Gulf production also declined, not averaging over 50 per cent. It was possible to mark a little more coal than in the New River field, owing to lower mining costs. The general movement was to the East, although little of the coal handled was for export or bunkering. Contract orders were largely the mainstay of production.

POCAHONTAS AND TUG RIVER

Although Pocahontas production was still hovering around 300,000 tons a week railroad disability losses were increasing, eclipsing "no markets" by more than 50,000 tons. The slow return of empties from Western points was largely responsible for the heavier car shortage. The only active market was in the West for prepared sizes and the other grades were hard to sell, even at the lower prices which prevailed, especially on slack.

Car shortage also affected Tug River production. Standing orders constituted the bulk of business although a Western demand for domestic supplemented such business. Eastern movement was much slower than usual, there being scarcely any Tidewater demand.

Middle West

WESTERN KENTUCKY

Demand Slow—Screenings Firmer as Result of Lower Domestic Production.

Operators are reporting slow business as continued mild weather and use of natural gas in residence heating is resulting in comparatively light domestic demand. The period of buying in advance of the threatened rail strike, and some buying when a coal strike was in sight, has made the market inactive, as there was a good deal of coal shipped, which became distress coal, where jobbers and operators had to unload to escape demurrage.

Mine run is very slow but prices are being well maintained. Prepared figures are also steady. However, light production of domestic is helping to hold the market on screenings, and while some coal is selling 60c.@\$65c. there have been some fair orders at 95c.@\$1.

Retailers in several instances report good stocks on hand, and that they will not be in the market until they reduce

these stocks, except for a little steam coal now and then to fill contracts.

SOUTHERN ILLINOIS

Sluggish Market Keeps Mines Idle—No Demand for Domestic or Steam—Railroad Tonnage Light.

The situation in the Carterville field is bad. There has been no letup of domestic business except on shipments to the Northwest. Other sections take only a light tonnage. Very little coal moves through the Thebes gateway to the South, that territory being supplied principally by Alabama and west Kentucky.

The steam market is in bad shape, but has picked up in the last few days, especially screenings. Nut is still heavy and egg and lump seem to be hardest to move. Railroad tonnage shows up somewhat lighter. Mines are getting from one to three days a week, with a mine here and there doing a trifling better.

The situation is not encouraging, a light tonnage causing heavy production cost and the miners claim they are not getting enough working time. Prices still hold at \$4.05 for lump and egg, and nut is about \$3.50. Screenings are \$1.25@\$1.75, with mine run \$2.60@\$2.90.

Somewhat similar operating conditions prevail in the Duquoin field and in Jackson County, and prices are about the same. Conditions in the Mt. Olive field are easier. Mines are working about two to three days a week. All sizes are hard to move, but steam is pretty well taken up on contract. The price on lump for St. Louis and Chicago is \$3.50, country price, \$3.75. A little tonnage is moving Northwest and railroad business is fairly good.

In the Standard field an unusual condition prevails. There are no screenings and the mines are blocked out on account of lump. Nut coal which has been heavy for a long time is now in demand and unobtainable. Mine run business outside of railroads is not moving. Domestic sizes are almost impossible to move at any price.

On account of the reduced working time steam as is available is moving fairly well. The market is set for better prices and nearly all operators are holding coal back anticipating a change for the better.

MIDWEST REVIEW

Steam Market Slumps—Domestic Fails to Strengthen—All Prices Weaker—Production Declines.

All through the Middle West interest in coal has suddenly ceased. Those operators who have their product to sell on the open market, either steam or domestic, are encountering great difficulty in getting any business. The weather has been cold, especially in the Northwest, but in spite of this, conditions remain extremely dull. Those operators who believed the public were holding off in purchasing domestic coal until the beginning of winter, have come to a rude awakening, because winter is here and the seasonal domestic demand is conspicuous by its absence.

Practically every dealer in the Middle West has his bins full of coal, but the bins of his customers are in an entirely different state. On account of the business depression in the small towns and the agricultural depression in rural communities, farmers and business men alike have been buying their coal sparingly. They bought in September or earlier perhaps, enough coal to run for

two months, instead of for the full winter season as normally. Until these small tonnages are consumed throughout the country, the domestic market will remain listless. In case of a prolonged disturbance in the way of a coal strike, the retail trade will find itself in poor shape, so far as domestic coal is concerned. The average dealer has his yard full, but a sharp demand, if it lasted three weeks, would see his bins swept bare. While to all appearances there is plenty of coal in the bins of the public, a prolonged strike would bring to light the fact that there is not any too much coal in this territory.

It is impossible to pick up the daily paper any day without seeing big headlines to the effect that such and such a district in the Middle West is enjoying prosperity with full working time at the factories. This may be true in one or two isolated cases, but the general industrial situation is not particularly bright at the present time, nor are the

prospects for the future promising, that is, if judged by the amount of coal consumed.

By keeping an eye on the coal market, one is generally able to get a pretty good idea of the industrial condition of any territory, and the steam coal market in the Middle West is nearer to demoralization today than it has been since the middle of summer. Steam coals are selling \$1@\$1.50 a ton, the big majority nearer to \$1.

The only thing that keeps steam coals from going lower is the fact that the domestic demand is so slow that not much steam coal is being produced. Operators prefer to keep their mines temporarily idle rather than run the risk of producing coal that will have to go to distributing centers on consignment. During the last six weeks, consignment has been found a most unfortunate and unsatisfactory procedure, and several substantial losses have been reported.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Sluggish Market Closes Mines—Stocks Heavy—Dull Period Ahead.

Cancelation of orders and little or no new business is reported. Prospects for any improvement in the near future are not at all encouraging. Even the cold snap has had little or no effect on the demand for domestic and the very dullest period of the year apparently is now being faced.

It seems that large stocks were accumulated by dealers and retailers in anticipation of the strike, and now, with some coal on hand and in the hope of getting a freight reduction soon, they refuse to buy.

It is rumored that some of the larger operations are considering a partial or complete shutdown until Jan. 1.

News Items From Field and Trade

ILLINOIS

The Union Fuel Co., having extensive operations in Illinois, has consolidated its offices to the Reisch Building, Springfield, instead of Chicago, where offices have heretofore been maintained.

The Kickapoo Creek Coal Co., of Peoria, has been incorporated with capital of \$65,000 by George H. Wamsley, John Rayner and others.

Drilling for coal will be started in Section 21 of Elk Prairie Township. Large tracts of land have been purchased in this region by the Naslon Coal Co.

The Montgomery Brothers Coal Co., of Murphysboro, has purchased the mine at that place formerly operated by Robert Harvey and Frank Scholes, and will continue its operation.

The Southern Illinois Coal Co., recently shipped its first car of coal from its new mine in Williamson County near Marion. The company had been working steadily on the plant in order to get it in condition to operate before cold weather hit the industry.

Reports from West Frankfort are to the effect that Mine No. 19 of the Peabody Coal Co., at that place is to be reopened after being idle for nearly a year. The mine will employ about the same number of men it formerly did.

The Franklin Coal & Coke Co., with extensive operations in Franklin and Williamson counties, has announced its intentions of sinking another new mine between Mullankeytown and Royalton. The mine will be located on the new branch of the Illinois Central which is to be put under construction at once, and will be located in the center of an unusually large coal field which has been heretofore untapped. The shaft of the mine will be sunk on what is known as the old Taylor farm and surveys have been made for its location.

KANSAS

The small mine of the **Burgess Coal Co.**, one mile south of Mulberry, was recently wrecked by two explosions. The tipples were destroyed, the mouth of the slope caved in and motors and other electrical machinery ruined.

Some coal men are showing considerable interest in the Illinois-Kansas miners' situation, in which the Illinois organization is defying the international union by supporting the Kansas strikers. Prediction was made that trouble is in the air. It is pointed out that Illinois miners may be prohibited from financing the Kansas strike through a probable suit by the Kansas

operators asking that the support be restrained. In that event litigation similar in some respects to the Indianapolis injunction suit may arise.

KENTUCKY

The Harvey Jellico Coal Co., has filed suit against the Standard Byproducts Co. and Fred E. Hoerter, for \$333.30 alleged due on a promissory note.

Amended articles have been filed by the **Winchester Coal Co.**, increasing its capital stock.

The Harlan-Kellioka Coal Co., has changed its charter, increasing the debt limit from \$25,000 to \$50,000.

Ross E. Gordon, of Louisville, president of the Gordon Miller Coal & Coke Co., and also of the States Oil Co., has merged the latter corporation with the Ohio Refining Co., Cincinnati, the States properties going in at \$236,000 in a new million dollar organization, of which Gordon will be an officer.

Sawyer D. Smith, U. S. District Attorney, has filed suit in U. S. District Court, at Covington, against the **Catrons Creek Coal Co.**, Harlan, stockholders, to recover \$21,574 alleged to be due the Government in income and excess profit taxes, it being alleged that the defendants dissolved the company, but filed erroneous reports with the Government of profits.

NEW YORK

The Virginia Iron, Coal and Coke Co., for the twelve months ended Sept. 30, 1921, in a report to the New York Stock Exchange shows net income after charges, depreciation and taxes of \$1,048,953. Gross income for the period amounted to \$7,624,541.

H. M. Bertolet, general manager of the New River & Pocahontas Consolidated Coal Co. spent a few days in New York recently.

W. H. Evans of Ansted, W. Va., president of the Mill Creek Coal Co. and of the Signal Knob Collieries Co., was a recent visitor in New York.

Among other contributors to the **Downtown Hospital Association, New York City**, were the following members of the coal trade: Berwind-White Coal Mining Co., Consolidation Coal Co., Knickerbocker Fuel Co., Cory Mann George Corporation, Castner, Curran & Bullitt, Inc., Madeira, Hill & Co., Pennsylvania Coal & Coke Co., Clinchfield Coal Corporation, Robert H. Burrows, New York & Phila. Coal & Coke Co., H. B. W. Haff, Anonymous—Burns Brothers, Emerson & Morgan Mining Corp., Williams & Peters, The C. G. Blake Co.,

OHIO

Colonel J. Mulvihill, veteran of the wholesale department of the Reliance Coal & Coke Co. of Cincinnati, who has been in poor health for several weeks, is again able to be at his desk.

An echo of the receivership for the **Mohio Coal Co.**, granted last July was heard in the United States District Court in Cincinnati when the **Tildesley Coal Co.**, E. M. Poston and John B. Johnston, acting as receivers for the Interstate Coal and Dock Co., appeared and asked that proceedings in bankruptcy be instituted against the Mohio company. It was alleged that the respondent company is insolvent and that it committed an act in bankruptcy with the appointment of the receiver.

Passing upon the suit of the **General Coal Co.**, of Huntington, W. Va., the United States Court of Appeals, sitting in Cincinnati, affirmed the decision of the lower courts which handed down a decision that the **Sloat-Darragh Co.**, of Hamilton, Ohio, is indebted to it for \$11,000, the award of the jury in the lower court. A question was raised whether the coal was purchased by the Hamilton coal company or a coke concern into whose possession it finally fell. Other cases appealed were: **H. H. Combs** against the **Haley Coal Co.**, in which the decision of the Eastern Kentucky court was affirmed; **The Atlantic Ice and Coal Corporation vs. Sam Van** in which an award of \$1,000 to Van, made in the Knoxville district court was affirmed.

Another wrangle over a State coal contract has appeared. This time it is a controversy over the purchase of West Virginia nut, pea and slack at \$4.20 a ton when the state could have purchased Ohio coal of the same grade at \$3.09. The **Southern Ohio Coal Exchange** through W. D. McKinney, its secretary and also a committee from the United Mine Workers called on the State officials to protest. Controversy over the relative value of the two grades of coal is in progress. An organized movement was launched by coal men to have Ohio coal purchased when bids for about 125,000 ton were opened Nov. 21.

Thomas C. Pratt, who has been in the coal stripping and mining business for the Wayne Coal Co. has resigned as general superintendent and is now located in Greensburg, Pa.

A. F. Smith is president and general manager of the recently organized **Pittsburgh-Ohio Coal Co.**, which has acquired 270 acres of coal in Jefferson County. The coal will be mined by stripping.

The Paragon Coal Sales Co., of Cleveland, has been incorporated with a capital of \$10,000. Incorporators are John H. Price, W. C. Graves, K. L. Fuller, Charles S. Horner and J. Janda.

The George L. Fairbanks Co. of Cleveland, has been incorporated with a capital of \$10,000 to do a retail coal business. The incorporators are W. F. Maurer, T. E. Bolton, Norton McGriffen, John T. Wilson and E. R. Dolin.

The Columbus Board of Purchase has been authorized by the city counsel to buy coal on the open market until Dec. 31. This action followed the taking of bids recently, all of which were rejected.

President Roy Cox of the Kanawha Valley Coal Co. of Charleston, was a recent visitor in the Cincinnati market.

The Turkeyfoot Coal Co., has been incorporated with a capital of \$150,000 to mine coal in the Tuscarawas Field. The incorporated with a capital of \$150,000 to W. H. Swihart, I. Wiesend and E. L. Smith.

The Boronice Coal Co., has been incorporated with a capital of \$150,000 to mine and sell coal. The concern has acquired a large acreage in Jefferson County. Incorporators are Fred W. Scott, Charles W. Zeigler, Sadelle Welday, William R. Alban and John J. Scott.

Fred W. Diebel, formerly manager for the Sun Coal Co., in Cincinnati and later a partner in the Eagle-Elkhorn Coal Co., is now affiliated with the sales force of the Producers' Coal Co.

E. A. Spreen and E. A. Lovejoy of the Thomas A. Mordue Coal Co., made a recent trip to Coal River mines of the corporation to look over a new tipple and other equipment which has been put in.

The Starr-Jackson Mining Co. has been incorporated with a capital of \$30,000. Offices are located at Columbus. The incorporators are Louis H. Helling, E. K. Delaney, Martha Evans, Lolo Goff and James R. Holub. At the same time the Starr Collieries Co. was chartered with a capital of \$50,000 to do a jobbing business with the same incorporators and the same office.

G. H. Ewald, of Charleston, president of the Standard Tide and Inland Coal Sales Co., spent a day or so in the Cincinnati market recently.

Harry Young, one of the principal figures in the Utilities Coal Co., of Huntington, was a business visitor in the Cincinnati market recently.

Pittsburg interests have purchased the holdings of the Williams Coal Co. of Steubenville for \$86,000, according to an announcement made by George W. Borden, receiver for the company. The mine and mining property is located just beyond the city limits and supplies some of the local demand.

OKLAHOMA

The Hartford Valley Coal Corporation has announced that a new coal field will be opened in Craig County in the near future. The field is located in township 26 and range 19, northwest of Vinita about 12 miles. The corporation has more than 10,000 acres under lease.

PENNSYLVANIA

Robert Buka, formerly with the Valley Camp Coal Co., Cleveland, has become affiliated with the Steel City Gas Coal Co., Pittsburgh.

A State charter has been issued to the Cucumber Run Coal Co., of Confluence. The capital stock is \$60,000 and F. M. Parnell, Confluence, is treasurer. The purpose of the corporation is the mining, shipping and preparing of coal for the market. The incorporators are F. M. Parnell, H. F. Parnell and John Van Sickel, all of Confluence.

The Shannopin Coal Co., Pittsburgh, has notified the State department of an increase in its indebtedness from nothing to \$4,800,000. James C. Watson, Pittsburgh, is treasurer.

After having been closed for a month by a strike operations were resumed in full Nov. 1 at the Freeport mines of the American Manganese Co. at Dunbar, 300 men returning to work after they were granted the Frick wage scale now generally in effect. The Dunbar mines attracted considerable attention July 1 when their employees accepted a substantial wage reduction rather than not work at all, merchants of the town making a proportionate cut in prices of staples. The employees joined the general strike movement among the independent plant employees and were the last to return to work.

The mine of the Brothers Valley Coal Co. was closed recently when miners refused to accept a wage reduction and a walk-out occurred. The operators contended they would have to revert to the scale of 1917 in order to maintain a profit on sales at present prices.

F. E. Gebhard, assistant chief engineer of the Hillman Coal & Coke Co., of Pittsburgh, has transferred his headquarters from Brownsville to the headquarters of the company.

The Ford Collieries Co., operating four large mines near Curtissville, which have been only working about half time, are now working full. The Inland Collieries Co., a subsidiary of the Inland Steel Co., who have been working steadily for several months, closed down recently for an indefinite time.

C. J. Maher, formerly superintendent of the Lambert plant of the H. C. Frick Coke Co., has been made superintendent of the Palmer plant of the same company, up the Monongahela River, where extensive improvements are under way.

The Exeter Machine Works, Inc., of West Pittston, announces the appointment of W. P. Mackenzie Co. as exclusive sales agents for the Exeter rotary pump line in the Philadelphia and Baltimore districts. Offices are in the Pennsylvania Building in Philadelphia and in the Equitable Building, Baltimore.

The Mulholand Coal Co., is being organized to operate coal mines. The company is headed by Frederick J. Mulholand and Clyde E. Speer. It is represented by W. J. Askin, Jr., 912 Oliver Building, Pittsburgh.

The Republic Mine of the Republic Iron & Steel Co., at Republic, which has been running about half-time is now running full. The Martin plant is still idle. The Marion Mine of the West Penn Coal Co., which has been idle since last December, is starting up. The Crescent Mine of the Pittsburgh Coal Co., near Brownsville, at the edge of the coke region, which has been working about half time is now running full.

The Pennsylvania Collieries, Consolidated, Inc., has been organized under Delaware laws, with capital of \$5,000,000, to operate coal properties in Pennsylvania. The company is represented by the Delaware Registration Trust Co., Wilmington.

UTAH

The Anthracite Coal Company has filed an amendment to its articles reducing the capital from \$750,000 to \$150,000.

A Utah Judge has ruled that owners of government mineral leases may use any portion of the surface necessary for the mining and removal of coal in spite of surface rights granted by the state. The judge bases his decision on the fact that the state accepted land grants from the national government, subject to the rights of the coal owner to use the surface for all purposes "reasonably incident to the mining and removal of coal." The case arose out of the application of the Morton Coal Co. of Salt Lake City which sought the right to build a railroad across a portion of the Standard Coal Co.'s tract under a right-of-way given by the Mutual company, which had acquired surface rights from the state.

WASHINGTON, D. C.

E. M. Spicker of the Geological Survey has returned to Washington from work in the coal fields of Wasatch Plateau, Utah.

The case of the Morrisdale Coal Co., vs. the United States under the Lever Law, in which the coal company seeks difference between market and Fuel Administration prices during the war, is on the calendar for argument before the Supreme Court. It is expected several weeks will intervene before a decision is rendered. The case is on appeal from the Court of Claims.

E. A. Holbrook, assistant director of the Bureau of Mines, is making an inspection visit to the experiment stations of the Bureau at which research work on coal is being done.

U. S. Civil Service Examinations will be held for positions of structural engineer, and associate engineers, economist, and associate economists, junior structural engineer, junior economist and administrative assistant. Receipt of applications to close Dec. 20, 1921.

Among claims which have been allowed by Government accounting officers and which have been sent to Congress for payment are the following: Under the War Department—James Coal Co., \$27; Meadow Lick Coal Co., \$51.50; Birmingham Coke and Byproduct Co., \$992. Under the Navy Department—J. H. Weaver & Co., \$11,458, fuel and transportation; Henriette Coal Mining Co., \$388. Claims of \$353 of the old Fuel Administration are also included.

The Supreme Court has before it for review the case of the Santa Fe Pacific R.R. Co. vs. the Interior Department, involving coal lands. The District of Columbia Court of Appeals refused the railroad company an injunction against the department to restrain it from canceling land selections made by the railroad with the government. The department conceded the land on the ground that it was valuable coal land, and the railroad has appealed the case.

WEST VIRGINIA

It having been necessary to appoint a receiver to administer the affairs of the American Gas Coal Co. of Morgantown, J. M. G. Brown, E. D. Tumlin and James R. Moreland, of Morgantown, were designated to act in that capacity. When the receivers were appointed they were authorized either to operate or to sell the property to the best advantage for the benefit of the creditors. At the first meeting of the three receivers a decision was reached to make an effort to operate the mines, it being hoped to put the company on a paying basis with a view to ultimately meeting the claims of the various creditors. It is hoped that the Knob Mine of the company will soon be ready to operate. J. M. G. Brown, one of the receivers appointed, was interested in the mine before it was taken over by the American company. This particular mine, however, has been in idleness almost since it was purchased by them.

President Everett Drennen of the West Virginia Coal and Coke Co. with headquarters at Elkins, was a visitor in the Fairmont region recently.

E. H. Arnold, of Elkins, president of the Randolph Colliery Co., was at Kansas City during the early part of November attending the American Legion convention.

Capitalized at \$200,000, the Nagola Coal Co., has been organized with headquarters in Huntington. Among those actively identified with the new concern are: A. D. Cronin, Detroit; G. R. Williams, Thomas E. Jeffries, L. T. Pope, B. L. Douglas, all of Huntington.

In a party of coal men who enjoyed a hunting trip in the mountains of West Virginia recently were Quin Morton, of the Wood-Morton Fuel Co., G. H. Caperton, president of the Smokeless Coal Association, and also of the New River Coal Co.; Harry M. Hall, of the Ft. Dearborn Coal Co., and others.

R. B. Isner, general manager of sales of the Boone County Coal Corporation, with headquarters at Sharples, has resigned to accept a similar post with the Old Dominion Coal Corporation in Charleston.

C. L. Menager, cashier of the Smokeless Fuel Co., of Charleston, was a visitor in Eastern cities recently.

F. C. Colcord, general manager in charge of the operations of the Colcord Coal Co., with offices at Montcoal, was a recent Charleston visitor.

J. K. Dering, president of the J. K. Dering Coal Co. of Chicago was a recent visitor in Charleston.

The Pine Bluff Coal Co., operating on a branch of the Western Maryland in the Fairmont region, has resumed operations. The company has found it possible, however, to work on a part time basis only.

With 300 acres of coal land near Mannington, in Fairmont County available for development, the D. T. & S. Coal Co. is putting the finishing touches on a new plant at Salt Lick. About all that is holding back the completion of the plant and the loading of coal is the construction of a spur from the B. & O.

T. L. Lewis, secretary of the New River Coal Association, has returned from a trip into northern West Virginia.

George E. Wolfe, secretary of the Winding Gulf Coal Operators' Association, was a Charleston visitor recently.

President L. B. Ramsey of the Logan Fuel Company, which has its main office in Charleston was in the Logan County field recently.

A concern recently organized in the Monongalia field was the Fielder Coal and Coke Co., which, with its main office in Morgantown, has a capital stock of \$25,000. Actively identified with the new company are: H. Fielder and Harold G. Hodges, of Morgantown; Clarence H. Fielder, of Parkersburg; James H. Henshaw of Fairmont; Robert W. Henshaw of Uniontown.

The capital stock has been increased from \$500,000 to \$1,000,000 by the Cumberland Mountain Coal Co. of Charleston.

H. H. Morris, of Huntington, president of the West Virginia Standard Coal Co. and other West Virginia concerns has also been elected president of the Mary Elizabeth Coal Co.

D. J. Henderschott is now associated with the Interstate Coal and Dock Co. Mr. Henderschott was formerly manager of the Manhasset Fuel Co., Charleston.

The **Consolidation Coal Co.** has acquired coal properties of the **Monongahela Power and Railroad Co.**, the consideration being \$3,000,000.

Traffic News

The complaint of the **Morton Salt Co.**, relating to rates on coal from West Virginia mines to Lake ports for trans-shipment by vessel beyond has been dismissed.

At complainant's request, the commission has dismissed the case brought by the **Heracles Motor Mfg. Co.**, relating to rates on coke from Detroit, to Canton, Ohio.

On advice that the proceedings have been satisfied, the commission has dismissed the complaints of the **D. L. & W. R.R.**, relating to rates on anthracite from Avondale Mine to Woodward Breaker during Federal control, and the complaint of the **Consolidated Coal Co.** of St. Louis.

The **Coal, Coke & Iron Ore Committee**, Central Freight Association, Pittsburgh, Pa., has docketed the subject of switching charge at Cleveland on bituminous or cannel coal or briquettes, carloads, from the Erie R.R. when for delivery on private sidings of the B. & O. and W. & L. E. Present rate 35c. per ton, proposed rate 20c. per ton. Absorption of Erie R.R. switching charge at Cleveland on the above coals from B. & O. and W. & L. E. for delivery on private sidings of the Erie. Present absorption 35c., proposed absorption 20c., out of switching rate of 35c. published by the Erie. Disposition will be made not later than Nov. 28.

The **Perry County Coal Corporation** in a brief filed with the I. C. C. in its case contends that the rates on coal from its mines to points in the St. Louis switching district are unreasonable, and asks that the rates in effect prior to the last general increase be restored. The **Illinois Coal Traffic Bureau** has asked the commission to make similar reductions from all Illinois mines if the request of the Perry County Coal Corporation is granted. The defendant railroads ask that the complaint be dismissed, on the ground that the proposed action would disturb relationships that have long existed.

Coal and coke rates to steel plants in the Buffalo, N. Y., territory were considered at a recent conference between steel producers of the Buffalo and Pittsburgh districts with the I. C. C. Request for lower rates on coal and coke to steel plants in Buffalo were based on the ground that unequal production costs have arisen from the commission's action in lowering rail rates on ore from the Lakes, as Northern plants do not receive the benefit of this reduction as they receive ore by water.

In the complaint of the **Loogootee Fire Clay Products Co.**, an I. C. C. examiner recommends that the rate on bituminous coal from Wheatland, Ind., to Vincennes, Ind., and from Montgomery, Ind., to Loogootee, Ind., during Federal control was not unreasonable but that the rate from Cannenburg, Ind., to Loogootee was unreasonable.

In the complaint of the **Graselli Chemical Co.**, an examiner recommends that rates on bituminous coal from mines in the Clinton, Ind. district to complainant's plant near Terre Haute, Ind., during Federal control were not unreasonable.

The I. C. C. has denied an application of the **Peerless Coal Co.** of Illinois for rehearing of its case in which the commission recently decided that rates on coal from various points on the Springfield Terminal Ry. to Interstate destinations were not unreasonable. The rehearing was requested on the ground that the Springfield group rates are not lower than other group rates in Ohio, Pennsylvania and Indiana and not lower than other group rates in Illinois, but are higher.

The **Northwestern Traffic and Service Bureau of Minneapolis** complains against unreasonable rates on soft coal from Alger, Wyo., to Grand Junction, Ia.

M. L. Butcher, of Kansas City, Kan., alleges unreasonable rates on coal from various points in Missouri and Kansas to Argentine (Kansas City), Kan.

The Albert Mine of the **Greater Fairmont Investment Co.** has been sold to Cumberland, Md., people represented by Basil Lucas, of Shinnston. This plant is located on the branch line of the Western Maryland in the Fairmont field.

ONTARIO

A meeting of the shareholders of the **Nukol Fuel Co.** was held in Toronto recently, and after hearing a report showing a substantial loss on operations, a committee

of five members was appointed to look into the situation and to report later. The financial statement showed that up to January, 1921, the company had sustained a loss of upward of \$125,000 and for the nine months ended Sept. 30, losses were \$72,069.81.

C. W. Moss, of Buffalo, president of the **Weaver Coal Co.** of that city, and also president of the **Penn-Canadian Fuel Co.**, Toronto, spent some days in Toronto recently. Another visitor from the Weaver Coal Co. was **W. D. Smith**.

The commission has set aside its former decision in the complaint of the **West Kentucky Coal Bureau** in so far as it relates to rates on coal from western Kentucky to Festus and Crystal City, Mo., and will give a rehearing on these rates.

Rep. Sanders of Indiana has had published as a House document a statement of **Interstate Commerce Commissioner Lewis** on rate reductions since August, 1920, in which coal rates are reviewed. The commissioner says that the reduction of 28c. a ton on coal from Pennsylvania, West Virginia, Ohio, Kentucky and other Eastern producing points to ports on Lake Erie when destined for movement by Lake to Wisconsin, Minnesota, the Dakotas, and the Northwest will affect about ten million tons of coal. The purpose of the reduction is said to be to avoid a coal shortage in the Northwest this winter and to readjust the rates on Eastern coal as compared with Illinois and Indiana coal in the Northwest. The reduction was extended to Lake cargo coal to ports on Lake Erie when destined to ports on Lakes Michigan or Huron regardless of whether the coal was for local consumption at those ports or destined to points beyond, and will affect an additional three million tons. Other coal rate reductions mentioned are: From Illinois mines to Michigan points. From Canon City District, Colo., to Colorado, Kansas and Nebraska destinations. From Montana to 150 destinations in Montana. Nut coal from points in New Mexico to points in Colorado.

Members of the Indiana Public Service Commission were in Washington recently, to assist in the movement to have the Interstate Commerce Commission help the **Pere Marquette R.R. Co.** finance its plan to buy the Indiana coal railway division, of the Chicago & Eastern Illinois R.R. The C. & E. I. has petitioned the I. C. C. for permission to abandon the line. The I. C. C. had the Indiana commission conduct the hearing on the petition and to make recommendations. It has been proposed that the federal contingent fund at the disposal of the I. C. C. for the help of struggling railroads be used to help the P. M. acquire the division, which then would be kept in operation.

The I. C. C. has denied the application of the **Seaboard Byproduct Coke Co.**, to reopen its case regarding movement of coke from Seaboard, N. J., to New England territory.

The Interstate Commerce Commission has granted the application of the **Chicago, Milwaukee and St. Paul R.R.** to acquire control by purchase of the capital stock of the **Chicago, Terre Haute and Southwestern**. The latter is a coal-carrying road and will be valuable for the St. Paul in tapping the coal fields in the Terre Haute district.

Association Activities

Southern Ohio Coal Exchange

At a postponed meeting of the Southern Ohio Coal Exchange held early in November, the question of the Anderson injunction was discussed at length, but as in the previous meeting, no action was taken. Because of the stay in execution given by the Federal Court of Appeals at Chicago, the question is not directly before the association. Ohio operators are watching the proceedings at Chicago with a great deal of interest as much hinges on the decision of the higher court.

Northern West Virginia Coal Operators' Association

Officials of the association took an active and prominent part in the presentation of evidence before the Interstate Commerce Commission at a hearing held in Atlantic City, N. J., in connection with the Ohio Rate Case, West Virginia operators being opposed to any widening of the freight differential which they claim would be discriminatory and which would operate to bar West Virginia coal from Ohio and other Middle Western states.

The association was represented by A. Lisle White of Clarksburg, its president; George S. Brackett, of Fairmont, secretary of the association; W. L. Andrews of Baltimore, vice president of the **Consolidation Coal Co.**; C. H. Jenkins, of the Hutchinson Coal Co.; W. O. Caldwell, chief clerk of the association. The representatives of the association, in conjunction with the representatives of other associations in West Virginia, aided in the presentation of evidence in rebuttal against that presented by the Ohio operators who were cross-examined. E. J. McVann, secretary of the **Smokeless Coal Association of West Virginia**, has the case in charge for the West Virginia operators.

Virginia Coal Operators' Association

As a result of a recent meeting held by the association at Norton, Va., a decision was reached to employ a full-time traffic manager. This field is growing in importance and traffic problems are coming more and more to the front.

One of the association activities at the present time has been a two weeks' vocational training school for mine foremen. This school was conducted under the supervision of Raymond V. Long, supervisor of industrial education of the Virginia State Board of Education and J. C. Wright, chief for industrial education of the Federal Board. Association members are giving attention to first aid work and there are first aid teams at nearly every plant of any consequence in the field.

Smokeless Association of West Virginia

In addition to a special meeting of the association, held at New York, a call was issued for a general meeting to be held in November. A report was submitted by the committee having in charge the question of freight reductions on coal for export, this committee reporting that it had been unable to make any headway in its consultations with railway officials. After hearing the reports mentioned, members abandoned any hope of obtaining any relief in the near future. The association left the question upon which reports had been submitted in the hands of the committee before attempting to take any definite action.

Coming Meetings

The American Institute of Consulting Engineers, Inc., will hold its annual meeting Jan. 16, 1922, at the Engineers' Club, 32 West 40th St., New York City, Secretary, F. A. Molitor, 35 Nassau St., New York City.

West Virginia Coal Mining Institute will hold its next meeting Dec. 6 and 7 at either Charleston or Huntington, W. Va. Secretary, R. E. Sherwood, Charleston, W. Va.

New England Wholesale Coal Association will hold its annual meeting Jan. 10, 1922, at Boston, Mass. Secretary, R. S. Townsend, 27 Kilby St., Boston, Mass.

Southern Appalachian Coal Operators' Association will hold its next meeting Jan. 27, 1922, at Knoxville, Tenn. Secretary, E. McCoy, Knoxville, Tenn.

Pike County Coal Operators will hold their annual meeting Jan. 6, 1922, at Pikeville, Ky. Secretary, F. E. Miller, Pikeville, Ky.

The Coal Mining Institute of America will hold its annual meeting at Pittsburgh, Pa., Dec. 7, 8 and 9. Secretary H. D. Mason, Jr., Chamber of Commerce Bldg., Pittsburgh, Pa.

American Society of Mechanical Engineers will hold its annual meeting Dec. 5-9 at the Engineering Societies' Building, 29 West 39th Street, New York City. Secretary, Calvin W. Rice, 29 West 39th Street, New York City.